

P A X I N O S   &   W A T S O N

# The Rat Brain

I N   S T E R E O T A X I C   C O O R D I N A T E S



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*We dedicate this book to Kosta Theodore Paxinos and Anwen Angharad Williams.*



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# Preface

In the first four editions of this atlas, we relied on a coronal section set that had some significant limitations; the section frequency proved over time to be too wide, sections did not always appear at regular intervals, and a few damaged sections had been replaced with sections from another brain. The fifth edition is based on a new coronal set which includes 161 sections from a single brain at regular 120µm intervals. This edition of the atlas is not simply an incremental improvement on the previous edition, but a completely new and far more comprehensive map of the rat brain.

Although the fifth edition features a different coronal section set, readers can be assured that the stereotaxic coordinates in the new atlas match those in previous editions. We have increased the scope of the atlas by incorporating new anatomical concepts where appropriate, and have once again delineated and named some areas not previously recognised.

Over the past decade our efforts at mapping the brain have been greatly enhanced by the availability of sections stained with a wide range of different chemical markers. A further contribution to the accuracy of our maps has been the knowledge we have gained from comparative neuroanatomical studies. One of us (GP) has published atlases of the human (Paxinos and Huang, 1995; Mai *et al.* 2004), monkey (Paxinos *et al.* 2000), and mouse brain (Paxinos and Franklin, 2004), and both of us are part of a team that is in the final stages of preparing an atlas of the chicken brain (Puelles *et al.* in press). Each of these atlas projects has provided us with new insights that have enhanced our ability to interpret the anatomy of the rat brain.

# Acknowledgements

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We acknowledge with gratitude the intellectual contribution to delineations made by Yuri Koutcherov (hypothalamus), Konrad Talbot (hippocampus), Nicola Palomero-Gallagher and Karl Zilles (cortex), Brent Vogt (cingulate cortex), Jan Vogt (cerebellum, precerebellar nuclei and vestibular nuclei), George Alheid (basal forebrain), Pascal Carrive (periaqueductal gray and hypothalamus), Glenda Halliday (substantia nigra and VTA), Ellen Covey and Manolo Malmierca (auditory system), Joel Elmquist (hypothalamus), Ann Goodchild and David Hopkins (rostromedial and caudomedial medulla), Jose DeOlmos (amygdala), Henk Groenewegen (thalamus), Joseph Travers (orofacial motor nuclei), John Mitrofanis (zona incerta), Pierre-Yves Risold (septum), Miklos Palkovits (paraventricular nuclei), Harvey Karten (pretectal area), Chip Gerfen (basal ganglia), Terry Furlong (hypothalamus), Jean Buettner-Ennever (oculomotor nuclei), Marina Bentivoglio (parafascicular nucleus).

George Paxinos acknowledges the support he has received from the Australian National Health and Medical Research Council (he holds an NHMRC Principal Research Fellowship), as well as assistance from the Clive and Vera Ramaciotti Foundation, the Rebecca Cooper Foundation, and the Brennan Foundation.

We have appreciated the intelligent and enthusiastic support from our Elsevier editor Johannes Menzel. His patience and consideration have made a real difference to the successful completion of this project. We also thank Maureen Twaig and other Elsevier staff for their willingness to help in solving production problems.

# Features of the Fifth Edition

- 161 coronal diagrams based on a single brain
- Diagrams spaced at constant 120  $\mu\text{m}$  intervals giving scientists the most comprehensive and convenient atlas of the rat brain
- The most accurate stereotaxic reference system available
- Outlines of figures and brain structures in blue, but labels and leader lines in black for increased clarity of delineations
- All delineations re-examined in the light of recent findings
- Delineations of brain structures have been made with reference to sections stained for Nissl substance, AChE, parvalbumin, calbindin, calretinin, SMI-32, tyrosine hydroxylase, and NADPH diaphorase (Paxinos *et al.* 1999a,b)
- Extensive use was made of reference works, including the third edition of *The Rat Nervous System* (Paxinos, 2004) and other recent neuroanatomical literature
- Spinal cord drawings from the atlas of Molander and Grant (1995)
- Diagrams available on CD-ROM for printing.

# Introduction

There are many reasons why the rat is the most commonly selected subject for research in mammalian neuroscience. First, rats are the right size: neither too small for accurate stereotaxic localization of discrete brain areas, nor too large for cost-effective laboratory management. Second, rats are generally hardy animals and are resistant to infections. Third, a number of inbred strains are available commercially, so that animals of consistent size can be used for stereotaxic procedures.

When the first edition of *The Rat Brain in Stereotaxic Coordinates* was published in 1982, it was the first atlas to be based on the flat skull position. It offered a choice of bregma, lambda, or the midpoint of the interaural line as the reference point. Although the coordinates were developed from study of adult male Wistar rats with weights ranging from 270 to 310 g, the atlas can be successfully used with male or female rats, with weights ranging from 250 to 350 g (Paxinos *et al.*, 1985).

With each new edition of the atlas, we have attempted to improve the accuracy of our delineations and have incorporated new findings on brain anatomy. However, our work has been hampered by the fact that our original series of coronal sections suffered from a number of limitations. First of all, our primary sections series showed sections at 0.5 mm intervals, which is insufficient to adequately represent all major structures in the brain for modern research purposes. Although we later attempted to better illustrate some areas by using some intervening sections, we could never fully compensate for the wide section interval in the primary series. In addition, we lost some sections in some areas of the brain and were forced to interpolate sections from another brain to compensate for the missing sections.

We were aware that the only real solution to these problems was to replace the coronal section series with a new section set based on shorter intervals and with all sections taken from the one brain. The new coronal section series is

presented in the present (fifth) edition of the atlas. It shows diagrams of sections taken at regular intervals of 0.12 mm. Having constant intervals between the sections shown in the atlas diagrams eliminates one of the annoying features of many brain atlases – the fact that when the reader turns a page they do not know how far they have advanced along the prime axis. All sections are from the one brain.

The sections in our new coronal series were stained with cresyl violet or with methods to demonstrate AChE or NADPH diaphorase because we found that these three methods were compatible with using fresh (unfixed) tissue, a requirement for deriving an accurate stereotaxic grid. However, we consistently used other markers to confirm our delineations (Paxinos *et al.*, 1999a, Paxinos *et al.*, 1999b).

We have once again been greatly assisted by the suggestions of many colleagues in the delineation of structures. We welcome further advice that might improve the accuracy of our diagrams in the future. Please email us on [g.paxinos@unsw.edu.au](mailto:g.paxinos@unsw.edu.au) or [c.watson@curtin.edu.au](mailto:c.watson@curtin.edu.au).

The present book will be followed by a comprehensive publication, which will include accompanying photographs and revised diagrams of sagittal and horizontal sections.

## Methods

A fresh brain from a male 290 g Wistar rat was frozen, and coronal sections were cut at 40 µm thickness. The sections were cut at right angles to the horizontal plane joining bregma and lambda.

## Stereotaxic surgery

We placed an anesthetized rat in a Kopf small-animal stereotaxic instrument, and the incisor bar was adjusted until the heights of lambda and bregma were equal. This flat-skull position was achieved when the incisor bar was lowered

$3.3 \pm 0.4$  mm below horizontal zero (Table 1). Because the point of intersection of the lambdoid and sagittal sutures is variable, we have chosen to define lambda as the midpoint of the curve of best fit along the lambdoid suture (see skull diagram). This redefined reference point is considerably more reliable than the true lambda (the point of intersection of the sagittal and lambdoid sutures), and it is located  $0.3 \pm 0.3$  mm anterior to the interaural line. We defined bregma as the point of intersection of the sagittal suture with the curve of best fit along the coronal suture. When the two sides of the coronal suture meet the sagittal suture at different points, bregma usually falls midway between the two junctions. The anteroposterior position of bregma was  $9.1 \pm 0.3$  mm anterior to the coronal plane passing through the interaural line, but for the brain represented in this atlas bregma is deemed to lie at 9.0 mm. The top of the skull at bregma and lambda was  $10.0 \pm 0.2$  mm dorsal to the interaural zero plane. To confirm the stereotaxic orientation of sections in the brain used for this atlas, reference needle tracks were made perpendicular to the horizontal and coronal planes. One horizontal needle insertion perpendicular to the coronal plane was made from the posterior of the brain at 4.0 mm above the interaural line and was 2.0 mm lateral to the midline. The reference track from the horizontal needle appears as a small hole in coronal sections.

Following surgery, the rat was decapitated and the whole head frozen on dry ice. The frozen skull was then prised off the frozen brain, and the brain was carefully mounted on the stage of microtome so that the sections would be cut in the coronal stereotaxic plane.

Every third section was used for preparation of the atlas diagrams, so that the interval between atlas diagrams is 0.12 mm. Exceptions to this rule are found in the region rostral to the rostrum of the corpus collosum (Interaural AP 11.28) and in the region of the medulla caudal to the inferior olive (Interaural AP -5.76 mm). In these two regions, sections were selected for presentation in the atlas at 0.24 mm intervals. Finally, the olfactory bulb is depicted at only three representative levels.

## Histological methods

The 'atlas' sections were stained with either cresyl violet or for the demonstration of AChE on an alternate basis, so that cresyl violet sections are 0.24 mm apart and AChE sections are also 0.24 mm apart. The two sections that intervene between each 'atlas' section were stained with cresyl violet or for the presence of AChE or NADPH diaphorase, according to the following sequence:

1. Cresyl violet 'atlas' section
2. AChE intervening section
3. NADPH intervening section
4. AChE 'atlas' section
5. Cresyl violet intervening section
6. NADPH diaphorase intervening sections

This sequence was repeated throughout the series of coronal section. This arrangement ensures that every 'atlas' section is accompanied by two adjacent sections, each of a different stain. For example, the 'atlas' AChE section described as number four above is preceded by an NADPH diaphorase section and followed by a cresyl violet section. This arrangement gave us maximum information for each 'atlas' section from the three stains. Staining was carried out on the same day as section cutting.

All sections, whether 'atlas' or intervening, were photographed on 4"x5" black and white negatives and printed on 36"x24" photographic paper. Each 'atlas' section was then covered with a sheet of 'Mylar' tracing film and outlines of structures were drawn in pencil. The final pencil drawings were scanned and then digitized using Adobe Illustrator.

### *Quality of Sections*

In some cases, the sections were slightly stretched or compressed in the process of cutting and mounting on slides. We have compensated for this by constructing diagrams which represent, as best we can judge from the study

of adjacent sections, the original shape of the brain section. In the worst cases, the 'atlas' section was so badly damaged that we have taken our drawing from an adjacent section.

### *Cresyl Violet Staining*

Slides were immersed for 5 min in each of the following: xylene, xylene, 100% alcohol, 100% alcohol, 95% alcohol, and 70% alcohol. They were dipped in distilled water and stained in 0.5% cresyl violet for 15-30 min. They were differentiated in water for 3-5 min and then dehydrated through 70% alcohol, 95% alcohol, 100% alcohol, and 100% alcohol. They were then put in xylene and coverslipped.

To make 500 mL of 0.5% cresyl violet of about pH 3.9, mix 2.5 g of cresylecht violet (Chroma Gesellschaft, Postfach 11 10, D-73257, Kongen, Germany, Fax number: 49-7024-82660), 300 mL of water, 30 mL of 1.0 M sodium acetate (13.6 g of granular sodium acetate in 92 mL of water), and 170 mL of 1.0 M acetic acid (29 mL of glacial acetic acid added to 471 mL of water). Mix this solution for at least 7 days on a magnetic stirrer, then filter.

### *AChE Histochemistry*

The method for the demonstration of AChE followed the procedures of Koelle and Friedenwald (1949) and Lewis (1961). Slides were incubated for 15 h in 100 mL of stock solution (see below) to which had been added 116 mg of S-acetylthiocholine iodide and 3.0 mg ethopropazine (May & Baker). The slides were rinsed with tap water and developed for 10 min in 1% sodium sulphide (1.0 g in 100 mL of water) at pH 7.5. They were then rinsed with water and immersed in 4% paraformaldehyde in phosphate buffer for 8 h, and then allowed to dry. Subsequently, they were dehydrated for 5 min in 100% alcohol, then immersed in xylene and coverslipped with Permount. The stock solution was a 50 mM sodium acetate buffer at pH 5.0 which was made 4.0 mM with respect to copper sulphate and 16 mM with respect to glycine. This was done by adding 6.8 g of sodium acetate, 1.0 g of



copper sulphate crystals, and 1.2 g of glycine to 1.0 L of water and lowering the pH to 5.0 with HCl. We found that fresh, unfixed tissue from the frozen brains showed a substantially stronger reaction for both stains than tissue fixed with formalin, paraformaldehyde, glutaraldehyde, or alcohol.

### *NADPH diaphorase*

The sections were washed in phosphate buffer for 10 minutes and incubated in 10 ml of a phosphate buffer solution containing 0.0125% nitroblue tetrazolium, 0.05% NADPH, 0.5% Triton X-100, and 1 mM magnesium chloride. The pH of the solution was adjusted to 7.6. The sections were incubated at 4°C for 48 hours. The incubation was stopped with a wash in phosphate buffer.

## Photography and drawings

### *Photography*

The photographs of stained brain sections were taken with a Nikon Multiplot macrophotographic apparatus using 4"x5" Kodak Plus X film. High contrast paper was used to print the photographs of Nissl sections, whereas lower contrast paper was used to print the photographs of AChE and NADPH sections.

### *Drawings*

Drawings, which later formed the basis of the figures, were made by tracing the photographs of sections. We drew only the right side of each section and derived the outline of structures on the left side by mirror image construction using Adobe Illustrator.

Fiber tracts in the drawings are outlined by solid lines, and nuclei and cell groups are outlined by broken lines. In general, each abbreviation is placed in the center of the structure to which it relates; where this is not possible, the abbreviation is placed alongside the structure and a leader line is used. The

abbreviations for fiber tracts and fissures are almost always positioned on the left side of the figure, and the abbreviations for nuclei and other cell groups are generally positioned on the right side. The outlines of the ventricles and aqueduct are filled in with solid color.

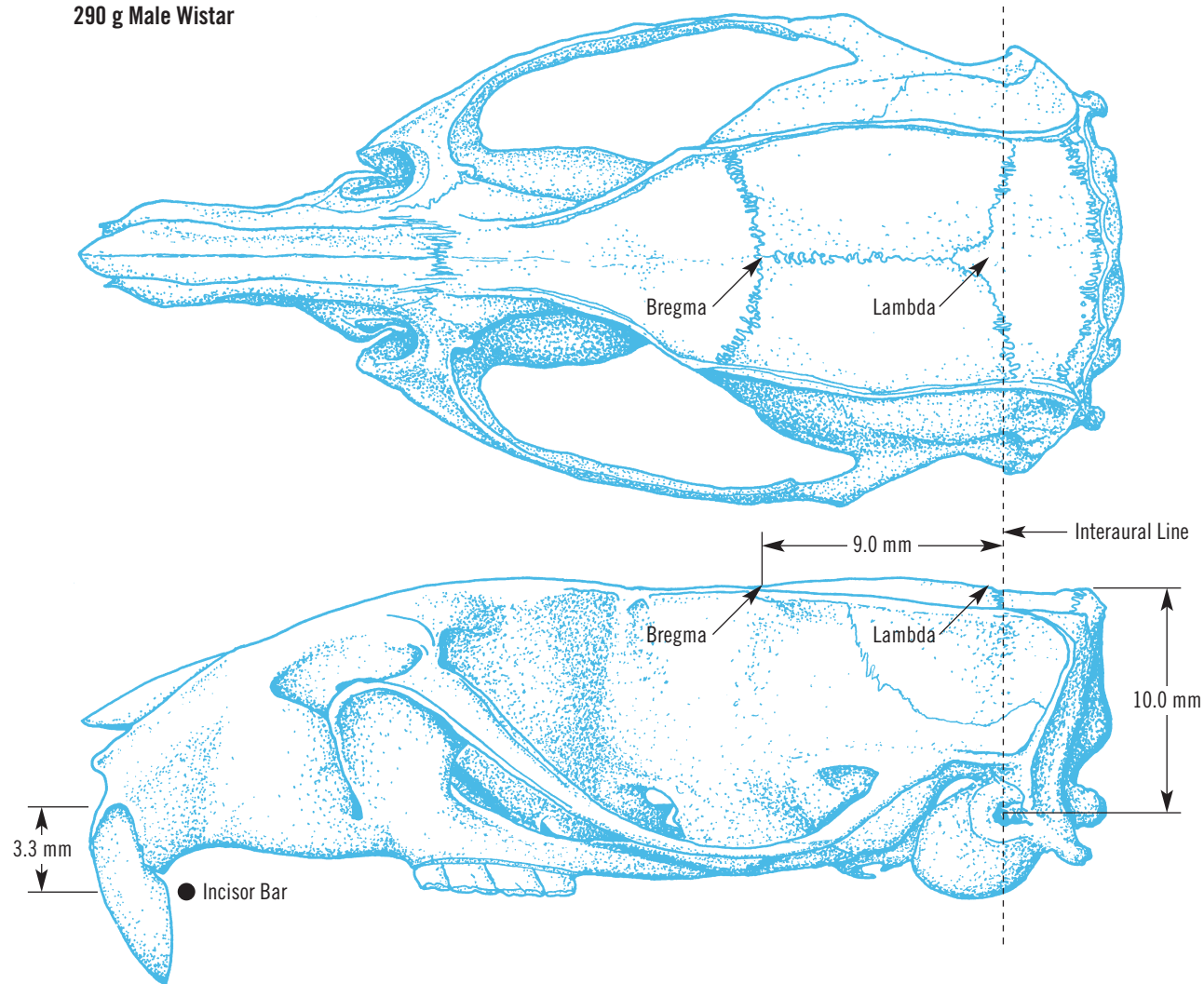
## Stereotaxic Reference System

The stereotaxic reference system is based on the flat skull position, in which bregma and lambda lie in the same coronal plane. Two coronal and two horizontal zero-reference planes are referred to in these drawings. One reference coronal plane cuts through bregma and the other cuts through the interaural line. Similarly, one horizontal plane is at the level of bregma on the top of the skull and the other is at the level of the interaural line. Lambda is usually located 0.3 mm anterior to the interaural line, and it can be used as an alternative reference point in conjunction with the dorsoventral coordinate of bregma. The position of the stereotaxic reference points and planes are indicated on the skull diagram. The stereotaxic reference grid shows 0.2 mm intervals.

### *Drawings of coronal brain sections*

In each of the coronal drawings, the large number at the bottom left shows the anteroposterior distance of the section from the vertical coronal plane passing through the interaural line. The large number at bottom right shows the anteroposterior distance of the plate from a vertical coronal plane passing through bregma. Note that these two coronal planes are 10 mm apart, so the two numbers on any one plate add up to 10 mm. The small numbers on the left margin show the dorsoventral distance from the horizontal plane passing through the interaural line. The numbers on the right margin show the dorsoventral distance from the horizontal plane passing through bregma and lambda on the surface of the skull. The numbers on the top and bottom margins show the distance of structures from the midline sagittal plane.

290 g Male Wistar



**Skull Diagram** Dorsal and lateral views of the skull of a 290 g Wistar rat. The positions of bregma, lambda and the plane of the interaural line are shown above the lateral view. The distance between the horizontal plane passing through the interaural line is shown on the right of the lateral view. The distance between the incisor bar and the horizontal plane passing through the interaural line is shown on the left of the lateral view. Lambda (midpoint of the curve of best fit along the lambdoid suture) is 0.3 mm anterior to the coronal plane passing through the interaural line.

## Accuracy of the stereotaxic coordinates

In almost all cases, the potential error in defining the position of any point in the brain is less than 0.5 mm. Although we used medium-sized (average 290 g) male Wistar rats in the construction of this atlas, we recognize that researchers often use animals of different sex, strain, and weight. Because of this, we have estimated the error that may occur if this atlas is used with female Wistar rats, male hooded (Long Evans) rats, male Sprague Dawley rats of 300-g weight, juvenile (180 g) Wistar rats, and mature (436 g) Wistar rats. The results of these estimations are shown in Table 1 (reproduced from Paxinos *et al.*, 1985).

It is evident from these studies that no substantial stereotaxic error will occur when rats of different sex and strain are chosen, provided that the rats are of similar weight to those on which the atlas is based (290 g). For example, for rats of different sex and strain but of similar weight, the anteroposterior distance between the interaural line and bregma is between 9.0 and 9.4 mm. Similarly, the dorsoventral distance between the interaural line and the surface of the skull at bregma and lambda is very stable (9.8-10.1 mm). By contrast, craniometric data for juvenile (180 g) and mature (436 g) Wistar rats differ substantially from those of other groups. The anteroposterior distance between the interaural line and bregma is 7.7 mm in the juvenile

**Table 1** Craniometric and stereotaxic data (means + S.D.) for rats of different sex, strain and weight

Subject	Mean weight (g)*	AP I – B (mm)	AP I – L (mm)	DV I – B (mm)	AP I – Acb (mm)**	AP B – ac (mm)**	AP I – 7n (mm)**	DV I – incisor bar (mm)
‘Atlas’ Wistar	290	9.1 ± 0.3	0.3 ± 0.3	10.0 ± 0.2	11.7	0.0	-1.3	-3.3 ± 0.4
Coronal plates	300	9.2	0.2	10.1				
Sagittal plates	270	8.9	0.0	10.0				
Horizontal plates	290	9.1	0.2	10.1				
Female Wistar	282	9.3 ± 0.2	0.5 ± 0.3	10.0 ± 0.1	11.6	0.1	-1.2	-3.2 ± 0.5
Hooded	290	9.4 ± 0.4	0.3 ± 0.6	9.8 ± 0.2	11.9	0.0	-1.2	-3.9 ± 0.6
Sprague	299	9.0 ± 0.2	0.7 ± 0.2	10.1 ± 0.1	11.7	0.1	-1.2	-3.9 ± 0.5
Juvenile Wistar	180	7.7 ± 0.4	-0.4 ± 0.3	9.9 ± 0.2	10.2	-0.1	-1.6	-2.0 ± 0.4
Mature Wistar	436	9.7 ± 0.3	0.6 ± 0.3	10.7 ± 0.4	12.4	-0.1	-0.8	-2.7 ± 0.3

\* S.D.s ≤ 20g.

\*\* S.D.s ≤ 0.4 mm.

ac, anterior commissure; Acb, accumbens nucleus; AP, anterior-posterior; B, bregma; DV, dorsal-ventral; 7n, facial nerve; I, interaural line; L, lambda.  
Reprinted with permission from *J. Neuroscience Methods*. 13 (1985) 139-143.

and 9.7 mm in the mature rats (9.0 mm in 290-g male rats). Lambda is 0.4 mm posterior to the interaural line in the juvenile rats and 0.6 mm anterior to this line in the mature rats (0.3 mm anterior in 290-g rats). Unexpectedly, the dorsoventral distance between the interaural line and bregma for juvenile rats (9.9 mm) was almost the same as that of 290-g rats (10.0 mm). In the mature rats, the interaural line to bregma vertical distance was 10.7 mm. In female rats, as well as in hooded, juvenile (180 g), mature (436 g) and 290-g Wistar rats, bregma was found to be above the most forward crossing fibers of the anterior commissure. This is the point at which the posterior limbs of the anterior commissure appear. These data confirm the observation of Whishaw *et al.* (1977) that bregma is more stable than the interaural line for positioning of electrodes in brain structures close to, or anterior to, bregma. However, data from insertion of needles aimed at the level where the facial nerve leaves the facial genu show that the interaural reference point is more stable than bregma for localization of such posterior structures. Therefore, if juvenile or mature rats are used, greater accuracy can be achieved if bregma is used as the reference point for work with rostral structures and the interaural line for work with caudal structures.

A further improvement in accuracy can be obtained by taking into account the actual location of the accumbens nucleus and the genu of the facial nerve. In agreement with Slotnick and Brown (1980), we noticed that coordinates of structures were closer to target if the coordinates given by the interaural and bregma reference systems were averaged.

No atlas or stereotaxic instrument will compensate for using bregma and lambdoid points inappropriately. These reference skull marks for bregma is the midpoint of the curve of best fit along the coronal suture, and the reference skull mark for lambda is the midpoint of the curve of best fit along the lambdoid suture. These two reference marks are not necessarily the points of intersection of these sutures with the midline suture.

## Nomenclature and the construction of abbreviations

The need for a stable neuroanatomical nomenclature to accurately and efficiently convey information between neuroscientists is obvious. However, many terms or abbreviations are still used to describe a single structure, and, in some cases, the same term or abbreviation is used for completely different structures. We urge all researchers to consider the merits of our system of nomenclature because it is systematic and derived after extensive consultations with neuroanatomy experts.

In considering the merit of a particular name over synonyms, we have chosen terms that have been ratified by modern usage, particularly usage by experts in that field. We have used anglicized versions of terms rather than older latinized versions wherever possible, and we have in all but a handful of cases avoided the use of eponyms.

Neuroscience communities concerned with different systems have developed identical abbreviations for completely different structures; for example SO may stand for both supraoptic nucleus and superior olive, SC for suprachiasmatic nucleus and superior colliculus, and IC for inferior colliculus and internal capsule. In dealing with the entire nervous system (as increasingly more researchers do) these parochial abbreviation schemes are serious obstacles to communication of data. An additional complication arises when homologous structures are nonetheless named or abbreviated differently in different species. We have made an effort to establish homologies and are using the same abbreviations for homologous structures in atlases of the rat (Paxinos and Watson, 1986), mouse (Franklin and Paxinos, 1996), monkey (Paxinos *et al.*, 2000), human (Paxinos *et al.*, 1990; Mai *et al.*, 2004), and chicken (Puelles *et al.*, in press).

The importance of following a logical system of abbreviations is shown by the fact that a term such as the accumbens nucleus can be (and probably has

been) abbreviated about 20 different ways. We used the abbreviation Acb in this as well as all our other atlases. We have adopted the same rule for other all other structures, and so we have maintained the same abbreviation across mammalian and avian species, homologies permitting.

Our abbreviations have been constructed on the basis of the following principles:

1. The abbreviations represent the order of words as spoken in English (e.g., DLG = dorsal lateral geniculate nucleus) rather than the order in which they appear in older latinised terms.
2. The general principle used in the abbreviations of the names of elements in the periodic table was followed: the capital letter representing the first letter of a word in a nucleus is followed by a lower case letter most characteristic of that word (not necessarily the second letter; e.g., Mg = magnesium; Rt = reticular thalamic nucleus).
3. All nuclei and other cell groupings (such as cortical areas) begin with a capital letter, except some cranial nerve nuclei which begin with a number followed by capital N (for 'nucleus'). All fibre bundles begin with lower case letters except some cranial nerves which begin with a number followed by lower case n (for 'nerve'). Thus, there is no necessity in for the letter "N" to be used to point out that a structure is a nucleus, except in the case of some cranial nerves. Similarly, there is no need for the letter "t" to be used to denote a fiber tracts.
4. Compound names of nuclei have a capital letter for each part (e.g., LPGi = lateral paragigantocellular nucleus.
5. If a word occurs in the names of a number of structures, it is almost always given the same abbreviation (e.g., Rt = reticular thalamic nucleus; RtTg = reticulotegmental nucleus of the pons). Exceptions to this rule are made for well-established abbreviations such as VTA.
6. Abbreviations of brain regions are omitted where the identity of the

region in question is clear from its position (CMn = centromedian thalamic nucleus; not CMnTh).

7. Arabic numerals are used instead of Roman numerals in identifying cranial nerves and nuclei (as in the Berman, 1968, atlas), layers of the cortex, and layers of the spinal cord. While the spoken meaning is the same, the detection threshold is lower, ambiguity is reduced, and they are easier to position in small spaces available on diagrams.

To assist in the recognition of brain structures, the labels for cell groups are placed on the right hand side of the diagram, and the labels for fibre bundles and nerves are placed on the left hand side of the diagram. However, where structures are crowded, we have placed some cell group labels on the left hand side for reasons of clarity.

## The basis of delineation of structures

For the fifth edition, we completely reviewed our delineations of all areas of the brain. Our primary guide was an extensive collection of histochemically stained sections (monoclonal antibodies and enzyme-based stains - Paxinos *et al.*, 1999a,b). We have also made extensive use of other publications from our laboratory (Paxinos, 1995; Paxinos and Huang, 1995; Paxinos *et al.*, 1994), the atlas prepared by Swanson (2004), as well as many authoritative studies published in major journals such as the *Journal of Comparative Neurology*.

We present below a brief account of the basis of delineation of structures. We have not repeated here the rationale for the delineation of structures presented in the second edition (Paxinos and Watson, 1996). Readers will be better able to judge the suitability of our delineations when our photographs are published as part of the comprehensive (three cardinal planes) edition of this atlas in 2005.

## Olfactory System

Refer to Shipley *et al.* (2004) and de Olmos *et al.* (1978) for a general description of the olfactory system.

### *Intermediate endopiriform nucleus (IEn)*

We have given this name to an area ventral to the dorsal endopiriform nucleus (DEn). Both DEn and IEn are deep to the piriform cortex. We previously included this area in DEn (RBSC4); Swanson sometimes calls it DEn and sometimes includes it in the deep layer of the piriform cortex. The cells in this area are relatively sparse and smaller than those in DEn. Both DEn and IEn are NADPH positive (Fig 88 Paxinos *et al.*, 1999a), but IEn has parvalbumin positive elements (Fig 89 Paxinos *et al.*, 1999a).

## Basal Ganglia and Basal Forebrain

Refer to Heimer *et al.* (1995) and Gerfen (2004) for a general description of the basal ganglia and to de Olmos *et al.* (2004) for a discussion of the substantia innominata and extended amygdala. Immunoreactivity for parvalbumin and the neurofilament protein SMI-32 identifies the ventral pallidum (Paxinos *et al.*, 1999a). We retained the term substantia innominata and identified dorsal, ventral (as in Grove, 1988), and basal components with the assistance of George Alheid. The basal component is marked by some positivity in tyrosine hydroxylase but is negative for SMI-32 (although surrounding areas are positive).

The concept of ventral pallidum, first proposed by Heimer and his associates, has been the guiding principle for structure/function relations of the basal forebrain (Barragan and Ferreyra-Moyano, 1995; Heimer *et al.*, 1997).

The researchers at the University of Virginia and Universidad Nacional de Cordoba have carved out of the substantia innominata another big territory, the sublentiform extended amygdala (Alheid *et al.*, 1995). Paxinos and Franklin (2001) have used the new scheme for their mouse brain atlas. We retained the name substantia innominata (for the part remaining after the

territory of the ventral pallidum has been defined) in keeping with earlier editions of this atlas. The dorsal substantia innominata roughly corresponds to the sublentiform extended amygdala, central part, while the ventral substantia innominata corresponds to the sublentiform extended amygdala, medial part. The area previously called fundus striati resembles the striatum proper in some respects and the accumbens shell in others. Given that the use of the term fundus striati creates problems with primate homologues, we followed the advice of George Alheid and called it the lateral accumbens shell. The remaining accumbens is delineated in accordance with Zaborszky *et al.* (1985) and Heimer *et al.* (1991). We followed de Olmos *et al.* (1995) in the identification of the interstitial nucleus of the posterior limb of the anterior commissure (IPAC).

### *Substantia nigra*

We used the primate terminology for the dorsal and ventral tiers of the substantia nigra and also for the part of the VTA which is called the parabrachial pigmented nucleus. The names of the primate SN subdivisions were developed earlier than those subsequently used in rodent studies, and the identified primate subdivisions are consistent with the degeneration patterns seen in Parkinson's disease (Glenda Halliday, personal communication, 2004). The reticular part of the substantia nigra can be divided into a ventrolateral and a dorsomedial component on the basis of parvalbumin and calbindin distribution (Paxinos *et al.*, 1999b). The remainder of the substantia nigra and the ventral tegmental area were delineated according to the work of McRitchie *et al.* (1996).

### *Navicular nucleus (Nv)*

We have renamed the area in the basal forebrain which we previously called the semilunar nucleus. The reason is that the name semilunar nucleus has priority in the avian literature and it refers to a completely different structure in birds. The existence of the semilunar nucleus was established on the basis of NADPH-diaphorase histochemistry (Paxinos *et al.*, 1999a). We acknowledge assistance of R. Harlan and P-Y. Wang in the identification of this structure (Ahima and Harlan, 1990; Wang and Zhang, 1995).



### *Globus pallidus external and internal parts (GPE, GPI)*

We have used the terms internal and external instead of medial and lateral in relation to the parts of globus pallidus to be consistent with the primate literature.

### *Lateral stripe of the striatum (LSS)*

LSS is a dense band of cells in Nissl stained sections. The area is negative in calbindin sections and lighter stained than the LAcbSh and striatum in TH (the distinction is very clear in Fig. 87 of Paxinos *et al.*, 1999a).

### *Dorsal and ventral parts of the claustrum (DCI and VCI)*

We have identified distinct dorsal and ventral parts of the claustrum in AChE stained sections. The dorsal part is positive for AChE and the ventral part is negative.

### *Ventral Tegmental Area*

We have identified the rat homologue of the human parapeduncular nucleus (Paxinos & Huang, 1995) but have named it the parainterfascicular nucleus. We suggest that the new term be also used for the human given its more descriptive nature. With the identification of the parainterfascicular in the rat, the entire VTA (in most levels) is represented by specifically name component parts. This avoids the problem of previous editions of this atlas where the label VTA was placed only on what we now call parainterfascicular nucleus, giving the impression that it alone was the VTA. The VTA in our view consists of the paranigral, the parainterfascicular, the parabrachial pigmented nuclei and the VTAR.

### *Septum, Hypothalamus, and Neurosecretory Nuclei*

Refer to Simerly (2004), Armstrong (2004), Risold (2004), and Oldfield and McKinley (2004) for a general description of these structures. Jutting ventrolaterally from the anterodorsal preoptic nucleus is a strip which is negative for parvalbumin which we have called the alar nucleus. The alar nucleus displays substance P positive cell bodies but little reactivity in its

neuropil (Larsen, 1992). In the preoptic area we followed Simerly (2004) and Simerly *et al.* (1984) except for the identification of the ventromedial and ventrolateral preoptic nuclei, for which we followed Elmquist *et al.* (1996) and Sherin *et al.* (1996). The compact part of the medial preoptic nucleus is negative for substance P (Harding *et al.*, 2004).

In the lateral hypothalamus we identified a ventrolateral hypothalamic nucleus on the basis of NADPH-diaphorase reactivity (Paxinos *et al.*, 1999a). This nucleus is caudal to the ventrolateral preoptic nucleus and dorsal to the supraoptic nucleus. The ventral part of dorsomedial nucleus is marked by densely stained cell bodies and terminals in NADPHdiaphorase preparations (Paxinos *et al.*, 1999a). The gemini nucleus is a conspicuous nest of a NADPH-diaphorase cell bodies (Paxinos *et al.*, 1999a). The parasubthalamic nucleus is present in the rat (Wang and Zhang, 1995), but it is not as impressive as the homologous structure seen in the mouse brain (Paxinos and Franklin, 2001). The arcuate nucleus was delineated according to the work of Magoul *et al.* (1994). See Paxinos and Watson (1986) for the identification of the striohypothalamic, magnocellular lateral hypothalamic, terete, and subincertal nuclei.

### *Lateral hypothalamus (PLH, TuLH, PeFLH, JPLH)*

We have given names to different regions that are now recognized as comprising the lateral hypothalamus. The features characteristic of lateral hypothalamus (particularly the population of large cells) are not limited to the area lateral to the fornix. The orexin and hypocretin containing cells are not confined to the classically defined LH area, but are also found medial to the fornix. Swanson (2004) correctly extended the lateral hypothalamus medial to the fornix, but still identified the fornix as another boundary from where various areas emanate. The region both medial and lateral to the fornix when stimulated electrically induces attack by a cat on a rat (Paxinos, Bandler and Flynn, unpublished observations), indicating that the PeFLH behaves in a unitary fashion as it concerns this behavior. The components of the lateral hypothalamus in our scheme are as follows.

PLH – ‘peduncular part of the lateral hypothalamus’  
TuLH – ‘tuberal part of the lateral hypothalamus’  
PeFLH – perifornical part of the lateral hypothalamus’  
JPLH – juxtaparaventricular part of the lateral hypothalamus’

*Posterior hypothalamus, dorsal area (PHD)*

This is an area previously identified as PHA in our atlas.

*Arcuate nucleus (ArcMP)*

ArcMP is ACHE positive and this distinguishes it from DM

*Episupraoptic nucleus (ESO)*

We named this nucleus on the basis of its location. Its rostral pole begins at the caudal pole of the ventrolateral preoptic nucleus; ESO can be found in Figs 39-45.

*Paraterate nucleus (PTe)*

This nucleus is located within the ventrolateral hypothalamic tract (Swanson, 2004) and rostral, dorsal and lateral to the terate hypothalamic nucleus.

*Amygdala and Bed Nucleus of Stria Terminalis*

Refer to de Olmos *et al.* (2004) for a general description of the amygdala and the bed nucleus of the stria terminalis. The anterodorsal part of the medial nucleus of the amygdala and the basomedial nucleus are defined by the presence of intense NADPH-diaphorase reactivity (Paxinos *et al.*, 1999a). The lateral part of the central nucleus of the amygdala is marked by the presence of tyrosine hydroxylase fibers and AChE negativity (Paxinos *et al.*, 1999a).

*Reticulostrial nucleus (RtSt)*

We have named this nucleus for its position between the stria terminalis and the reticular nucleus. In calretinin stained sections it has a densely positive neuropil whereas the reticular nucleus has a pale neuropil. In parvalbumin sections, RtSt is positive in neuropil while the reticular nucleus is positive for cells and neuropil (streaky and spotty). RtSt is largest at anterior pole of the

thalamus. In calbindin sections, the stria terminalis is positive whereas the RtSt is negative (Fig 160, Paxinos *et al.*, 1999a). Its medial part is negative and lateral is positive in parvalbumin (Fig 166, Paxinos *et al.*, 1999a).

*Rostral amygdalopiriform area (RAPir)*

The rostral amygdalopiriform area is a distinct region between PLCo and Pir has a dense layer 2 in lateral two thirds but much less dense in medial third. We had outlined but not labeled this structure in previous editions of our atlas. This is the area which Swanson (2004) calls the posterior amygdalo cortical area, a term which we did not adopt because it does not fit well with the names we had already given to surrounding areas.

*Thalamus*

Refer to Groenewegen and Witter (2004) for a general description of thalamic nuclei. See Paxinos and Watson (1986) for the identification of the ethmoid, retroethmoid, subgeniculata, and precommissural nuclei. We have reverted to the use of the term ventral posterior nucleus, parvocellular part (Paxinos and Watson, 1982) for the nucleus that we previously named the gustatory nucleus of the thalamus (Paxinos and Watson, 1986). We made this change on the advice of Clifford Saper that gustatory input is more medial in this nucleus, and autonomic-related inputs can be found at more lateral parts of this structure (Yasui *et al.*, 1989).

*Retroreuniens area (RRe)*

We gave the name RRe to a region dorsal to the PH, ventral to CM, and medial to VPPC and SPF. Caudally, RRe merges with the periventricular gray matter.

*Paraxiphoid (PaXi)*

The paraxiphoid nucleus (PaXi) lies between the xiphoid nucleus (Xi) of the thalamus medially and the zona incerta laterally. It appears to be part of a belt separating hypothalamus from thalamus. In Fig 264 of Paxinos *et al.*, 1999a, an NADPH positive belt can be seen to extend from the reticular nucleus to zona incerta and paraxiphoid.



### *Ventral limitans thalamic nucleus (Vli)*

This nucleus is a thin sheet between subparafascicular, parvicellular part and the medial lemniscus. We so named it to complement the posterior limitans thalamic nucleus. Palkovits has observed CGRP positivity in this nucleus (personal communications, 2004).

### *Hippocampal Region*

Refer to Witter and Amaral (2004) for a general description of the hippocampal region.

We now distinguish a dorsal and a ventral subiculum. We have labeled the transition area of dorsal and ventral subiculum as ST<sub>r</sub>. We have drawn the borders of the presubiculum and parasubiculum so as to reach the white matter as explained in Haug (1976) and Mulders *et al.* (1997).

The entorhinal parcellation scheme of Insausti *et al.* (1997) is appealing because each of the cytoarchitecturally distinct divisions has a different pattern of connections as they detail in their paper. The parcellation recognizes that the medial and lateral sectors of the entorhinal area are separated by two intermediate sectors obvious in our Nissl preparations. Insausti *et al.* specifically identify six entorhinal fields: (1) an amygdalopiriform cortex which they termed amygdalo-entorhinal transition field; (2) a medial entorhinal field (MEnt) equivalent to the ventromedial entorhinal area of Krettek and Price (1977); (3) a caudomedial entorhinal field (CEnt), which is the classic medial entorhinal area; (4) a ventral intermediate entorhinal field (VIEnt) equivalent to the caudal ventrolateral entorhinal field of Krettek and Price (1977); (5) a dorsal intermediate entorhinal field (DIEnt); and (6) a dorsolateral entorhinal field (DLEnt). The last two fields together are equivalent to the dorsolateral entorhinal field of Krettek and Price (1977).

The postsubicular area was identified on the basis of the work of Van Groen *et al.* (1992).

### *Cerebral cortex*

There have been two comprehensive cortical parcellation schemes in recent decades. The first notable one was presented by Zilles (1985) and was constructed on the original stained sections of the earlier editions of our atlas. In the second edition of our atlas we used the cortical parcellations of Zilles (1985). The second comprehensive cortical delineation scheme was presented by Swanson (1992). The Zilles (1985) delineations differ significantly from the Swanson (1992, 2004) scheme. The atlas of chemical markers (Paxinos *et al.*, 1999a,b) enabled us to make a decision on the strengths of the two schemes. On this basis we have retained many of the features of the sensory, motor, and insular areas proposed by Zilles (1985). However, we have curtailed the rostral spread of Zilles's occipital areas and delineated the sensory representation of the trunk region and temporal association area in line with Swanson (1992, 2004).

We have retained the perirhinal cortex at caudal levels (along with Zilles, 1985) because there is a characteristic NADPH-diaphorase reactivity associated with this area. Palomero-Gallagher and Zilles (2004) have recently completed a substantial revision of the Zilles and Wree (1995) plan especially in the non-sensory parietal regions and we have followed their lead. Strong parvalbumin immunoreactivity is present in layer 4 of the primary somatosensory cortex. SMI-32 immunoreactivity formed distinctive patches in layer 4 of the barrel field and forelimb and hindlimb region.

The primary auditory area was identified on the basis of reduced calbindin immunoreactivity in the deep layers. All the auditory areas were marked by the presence of SMI-32 positive cells in the superficial layers (Paxinos *et al.*, 1999a,b).

AChE marked the location of the prelimbic and agranular insular cortices. NADPH-diaphorase assisted in defining the agranular insular, perirhinal, and retrosplenial granular cortices. Additionally, NADPH-diaphorase immunoreactivity indicated the ventral part of the medial entorhinal cortex.

Calretinin immunoreactivity assisted in delineation of the lateral entorhinal cortex where the outer part of layer one is densely stained.

The dorsolateral orbital cortex was delineated in accordance with the work of Ray and Price (1992). We use the term frontal association cortex for the frontal cortex that others allocated to the secondary motor cortex (Swanson, 1992, 2004; Zilles, 1985). This designation is in agreement with microstimulation data (Neafsey *et al.*, 1986).

#### *Retrosplenial cortex (RSD and RSG)*

The retrosplenial dysgranular cortex (RSD) was previously named by us the retrosplenial agranular cortex, but we have changed it on the advice of Brent Vogt. The retrosplenial granular cortex (RSG) is divided into three areas a, b, and c. Some authors refer to the RSG as area 24, according to the original scheme of Brodmann.

### *Reticular Formation*

Refer to Jones (1995) for a general description of the reticular formation. The intermediate reticular zone was first identified in the rat (Paxinos and Watson, 1986), but is seen to advantage in the human brain (Paxinos and Huang, 1995). The intermediate reticular zone at levels of the caudal pole of the facial nerve nucleus is marked by NADPH-diaphorase positive cells. The lateral paragigantocellular nucleus is conspicuous in NADPH-diaphorase preparations (Paxinos *et al.*, 1999b). We have identified the parapyramidal nucleus as the cell group dorsolateral to the pyramidal tract, which is outlined but not named in the second edition of this atlas (Paxinos and Watson, 1986). The identification of the epifascicular nucleus is based on the description of this nucleus in the human brain (Paxinos and Huang, 1995).

#### *Conterminal nucleus (Ct)*

We have identified the conterminal nucleus in the medulla close to the inferior olive. This group was originally identified by Olzewski and Baxter (1954) and is clearly shown in the human brain stem atlas (Paxinos and

Huang, 1995). The nucleus is seen as two separate AChE positive cell groups, one lateral to the inferior olive (caudal pole of IOA) and a second group medial to the IOA.

### *Periaqueductal and Periventricular Gray*

Refer to Keay and Bandler (2004) for a general description of the periaqueductal gray. The boundaries of periaqueductal gray cell columns were drawn according to Carrive (1993), Carrive and Paxinos (1994), and Paxinos and Huang (1995). We identify the rodent homologue of the human pleoglial periaqueductal gray in Figs 77-80. Two nuclei lateral to the central gray pars alpha were identified on the basis of SMI-32 immunoreactivity – central gray pars beta and central gray pars gamma (Paxinos *et al.*, 1999b).

#### *Lithoid nucleus (Li)*

We have named this nucleus for the Greek word for a stone. This word was particularly applied to an elongated stone used in the ancient Olympics. Li is a prominent group of large cells in the dorsal part of the rostral PVG. While generally ovoid in cross section, the medial and lateral sides are in Figures 71-73 parallel to each other. Li lies medial to MCPC caudally, and medial to RPF rostrally. It is ventral to the PrC and dorsal to the fasciculus retroflexus. More caudally, it is dorsal to Dk. It can be readily identified in a horizontal section (Fig 105, Paxinos and Watson, 1998).

### *Tegmental Nuclei*

For the identification of the anterior tegmental, microcellular tegmental, subpeduncular tegmental, rabdoid, and epirubrospinal nuclei, see Paxinos and Watson (1986).

#### *Epipeduncular nucleus (EpP)*

A small but distinctive group of large cells below the peripeduncular nucleus and above the cerebral peduncle (Fig 78-80) has no home in the surrounding nuclei. We have named this group the epipeduncular nucleus.

### *Reticular tegmental nucleus, L part (RtTgL)*

In Figs 112-114 the rat homologue of the subnucleus L of the LtRt nucleus Olzewski and Baxter (1954) can be identified (see also Paxinos and Huang, 1995).

### *Raphe Nuclei*

We identified the raphe nuclei on the basis of 5-hydroxytryptamine sections prepared by G. Halliday and I. Tork (see also Harding *et al.*, 2004). We identified the raphe interpositus nucleus on the basis of the work of Buettner-Ennever *et al.* (1988).

### *Locus Coeruleus and Brainstem Catecholamine Cell Groups*

Refer to Aston-Jones (2004) for the delineation of the locus coeruleus. We delineated the catecholamine cell groups by following Hökfelt *et al.* (1984) with assistance from our own tyrosine hydroxylase preparations (Paxinos *et al.*, 1999b).

### *Brainstem Nuclei Associated with Taste, Respiratory, Cardiovascular and Other Autonomic Functions*

Refer to Saper (1995) and Norgren (1995) for a general description of these nuclei.

#### *Nucleus of the solitary tract*

The posterior part of the nucleus of the solitary tract was delineated in accordance with the work of Whitehead (1990), Herbert *et al.* (1990), McRitchie (1992), and Altschuler *et al.* (1989). The rostral part of the nucleus of the solitary tract was difficult to delineate, but we recognize a rostromedial subnucleus on the basis of NADPH-diaphorase positivity.

#### *Medullary respiratory groups and the Botzinger complex*

These areas were delineated in accordance with Ellenberger *et al.* (1990), Kanjhan *et al.* (1995), and Cox and Halliday (1993).

### *Parabrachial nucleus*

The parabrachial nucleus is delineated in accordance with Fulwiler and Saper (1984), Herbert *et al.* (1990), Whitehead (1990), and Herbert and Saper (1990). The external part of the lateral parabrachial nucleus and medial parabrachial nucleus are marked by NADPH-diaphorase positive cells and fibers (Paxinos *et al.*, 1999b).

### *Oromotor Nuclei*

Refer to Travers (2004) for a description of the oromotor nuclei.

### *Precerebellar Nuclei and Red Nucleus*

Refer to Ruigrok (2004) for a general description of these structures. Within what has been previously called the parabrachial area there is a circumscribed cell group which we called the parabrachial nucleus. We have named the large cells above the lateral lemniscus the epilemmic nucleus (Paxinos *et al.*, 1999b).

### *Cerebellum*

The identification of lobules, fissures, and deep cerebellar nuclei is based on the work of Voogd (2004) and Swanson (2004).

### *Somatosensory System*

Refer to Tracey (2004b) for a general description of the somatosensory system. The general basis of delineation of these structures is described in Paxinos and Watson (1996). However, we followed Marfurt and Rajchert (1991) for the borders of the spinal trigeminal nucleus.

#### *Trigeminal transition zone (5Tr)*

We identify the NADPH-diaphorase positive area medial to the principal sensory trigeminal nucleus as the 5Tr given its juxtaposition between the trigeminal and the parabrachial nuclei.

#### *The trigeminosolitary zone (5Sol)*

The trigeminosolitary zone commences caudal to the trigeminal transition zone, and extends as far caudal as the level of the area postrema. The rostral part of this zone was previously identified by Paxinos and Huang (1995) in the human and named the subsolitary nucleus. We note that in the medulla, much like the in thalamus (VPM, VPPC – Lundy and Norgren, 2004), there is a progression of functional areas from the trigeminal concerned with somatosensory function to the solitary concerned with gustatory function from receptors of the same peripheral structures.

#### *Matrix (Mx)*

Paxinos and Huang (1995) identified in the human the pericuneate and peritrigeminal matrix. We observed a similar structure in the rat and identified it as the residual region after the solitary, trigeminosolitary, cuneate and parvocellular reticular nuclei are accounted for.

#### *Cuneate nucleus, rotund part (CuR)*

We note that as in primates, the rat has a rotund part in the cuneate nucleus which almost certainly represents the forepaw area.

### *Visual System*

Refer to Sefton *et al.* (2004) for a general description of the visual system. The ventral tegmental visual relay zone was identified on the basis of the work of Giolli *et al.* (1985). The intergeniculate leaf was delineated on the basis of the work of Morin and Blanchard (1995).

### *Auditory System*

Refer to Malmierca and Merchan (2004) for a general description of the auditory system. We used Faye-Lund and Osen (1985) as well as Malmierca and Merchan (2004) for the identification of areas of the inferior colliculus. The medial geniculate was delineated according to the work of LeDoux *et al.* (1985). The nucleus of the central acoustic tract has been identified in the cat, and Ellen Covey has delineated this structure in our atlas. For additional

details on the basis of delineation of the components of the auditory system refer to Paxinos and Watson (1986).

#### *Nucleus of the commissure of the inferior colliculus (Com)*

The commissure of the inferior colliculus is populated by many cells. On the advice of Ellen Covey we have named this the nucleus of the commissure of the inferior colliculus.

#### *Dorsal cochlear nucleus*

We have adopted new abbreviations for the layers of the dorsal cochlear nucleus: DCDp is the dorsal cochlear deep core; DCFu is the dorsal cochlear fusiform layer; DCMo is the dorsal cochlear molecular layer.

#### *Periolivary horn (POH)*

The periolivary region has a dorsolateral protrusion positive in parvalbumin (Paxinos *et al.*, 1999b), which we termed the periolivary horn (POH).

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# List of Structures

Names of the structures are listed in alphabetical order. Each name is followed by abbreviation of the structure.

1st cerebellar lobule (lingula) 1Cb  
2b cerebellar lobule 2bCb  
2nd and 3rd cerebellar lobules 2/3Cb  
2nd cerebellar lobule 2Cb  
3rd and 4th cerebellar lobules 3/4Cb  
3rd ventricle 3V  
4th and 5th cerebellar lobules 4/5Cb  
4th cerebellar lobule 4Cb  
4th ventricle 4V  
5th cerebellar lobule 5Cb  
6a cerebellar lobule 6aCb  
6b cerebellar lobule 6bCb  
6c cerebellar lobule 6cCb  
6th cerebellar lobule 6Cb  
7th cerebellar lobule 7Cb  
8th cerebellar lobule 8Cb  
9th cerebellar lobule, a 9aCb  
9th cerebellar lobule, a and b 9a,bCb  
9th cerebellar lobule, b 9bCb  
9th cerebellar lobule, c 9cCb  
10th cerebellar lobule (nodule) 10Cb

## A

A1 noradrenaline cells A1  
A1 noradrenaline cells/C1 adrenaline cells A1/C1  
A11dopamine cells A11  
A12 dopamine cells A12  
A14 dopamine cells A14  
A2 noradrenaline cells A2  
A4 noradrenaline cells A4  
A5 noradrenaline cells A5  
A7 noradrenaline cells A7  
abducens nucleus 6N  
accessory abducens nucleus 6Acs  
accessory abducens nucleus 6Acs  
accessory abducens/facial nucleus Acs6/7  
accessory nerve nucleus 11N  
accessory neurosecretory nuclei ANS  
accessory olfactory bulb AOB  
accessory olfactory tract aot

accessory optic tract aopt  
accumbens nucleus Acb  
accumbens nucleus, core AcbC  
accumbens nucleus, rostral pole AcbR  
accumbens nucleus, shell AcbSh  
acoustic radiation ar  
acoustic stria as  
agranular insular cortex AI  
agranular insular cortex, dorsal part AID  
agranular insular cortex, posterior part AIP  
alar nucleus Al  
alveus of the hippocampus alv  
ambiguus nucleus Amb  
ambiguus nucleus, compact part AmbC  
ambiguus nucleus, loose part AmbL  
amygdalohippocampal area AHl  
amygdalohippocampal area, posteromedial part AHlPM  
amygdaloid fissure af  
amygdaloid intramedullary gray IMG  
amygdalostratial transition area ASt  
anbiguus nucleus, subcompact part AmbSC  
angular thalamic nucleus AngT  
ansa lenticularis al  
ansoparamedian fissure apmf  
anterior amygdaloid area AA  
anterior amygdaloid area, dorsal part AAD  
anterior amygdaloid area, ventral part AAV  
anterior cerebral artery acer  
anterior commissural nucleus AC  
anterior commissure ac  
anterior commissure, anterior part aca  
anterior commissure, intrabulbar part aci  
anterior commissure, posterior part acp  
anterior hypothalamic area AH  
anterior hypothalamic area, central part AHC  
anterior lobe of pituitary APit  
anterior olfactory nucleus, dorsal part AOD  
anterior olfactory nucleus, external part AOE  
anterior olfactory nucleus, ventroposterior part AOVp  
anterior perifornical nucleus APF  
anterior pretectal nucleus APT  
anterior pretectal nucleus, dorsal part APTD  
anterior pretectal nucleus, ventral part APTV  
anterior spinal artery asp  
anterior tegmental nucleus ATg  
anterodorsal preoptic nucleus ADP  
anterodorsal thalamic nucleus AD

anterovent thalamic nucleus, dorsomedial part AVDM  
anteroventral preoptic nucleus AVPO  
anteroventral thalamic nucleus, ventrolateral part AVVL  
aqueduct Aq  
arcuate hypothalamic nucleus, dorsal part ArcD  
arcuate hypothalamic nucleus, lateral part ArcL  
arcuate hypothalamic nucleus, lateroposterior part ArcLP  
arcuate hypothalamic nucleus, medial part ArcM  
area postrema AP  
artery a  
ascending fibers of the facial nerve asc7  
azygous pericallosal artery azp

## B

B9 serotonin cells B9  
Barrington's nucleus Bar  
basal nucleus (Meynert) B  
basilar artery bas  
basolateral amygdaloid nucleus BL  
basolateral amygdaloid nucleus, anterior part BLA  
basolateral amygdaloid nucleus, posterior part BLP  
basolateral amygdaloid nucleus, ventral part BLV  
basomedial amygdaloid nucleus BM  
basomedial amygdaloid nucleus, posterior part BMP  
bed nucleus of stria terminalis, fusiform part Fu  
bed nucleus of stria terminalis, supracapsular division STS  
bed nucleus of stria terminalis, supracapsular division, lateralpart STSM  
bed nucleus of stria terminalis, supracapsular division, medial part STSL  
bed nucleus of the anterior commissure BAC  
bed nucleus of the stria terminalis BST  
bed nucleus of the stria terminalis, intermediate division STI  
bed nucleus of the stria terminalis, intraamygdaloid division STIA  
bed nucleus of the stria terminalis, lateral division STL  
bed nucleus of the stria terminalis, lateral division, dorsal part STLD  
bed nucleus of the stria terminalis, lateral division, juxtacapsular part STLJ  
bed nucleus of the stria terminalis, lateral division, ventral part STLv

bed nucleus of the stria terminalis, medial division STM  
bed nucleus of the stria terminalis, medial division, anterior part STMA  
bed nucleus of the stria terminalis, medial division, anterolateral part STMAL  
bed nucleus of the stria terminalis, medial division, posterior part STMP  
bed nucleus of the stria terminalis, medial division, posterointermediate part STMPI  
bed nucleus of the stria terminalis, medial division, posterolateral part STMPL  
bed nucleus of the stria terminalis, medial division, posteromedial part STMPM  
bed nucleus of the stria terminalis, medial division, ventral part STMV  
blood vessel bv  
brachium of the inferior colliculus bic  
brachium of the superior colliculus bsc  
brachium pontis (stem of middle cerebellar peduncle) bp

## C

C1 adrenaline cells C1  
C1 adrenaline cells and A1 noradrenaline cells C1/A1  
C2 adrenaline cells C2  
C3 adrenaline cells C3  
caudal interstitial nucleus of the medial longitudinal fasciculus CI  
caudal linear nucleus of the raphe CLi  
caudal periolivary nucleus CPO  
caudomedial entothinal cortex CEnt  
caudoventral respiratory group CVRG  
caudoventrolateral reticular nucleus CVL  
cell bridges of the ventral striatum CB  
central amygdaloid nucleus, medial division, anteroventral part CeMAV  
central amygdaloid nucleus Ce  
central amygdaloid nucleus, capsular part CeC  
central amygdaloid nucleus, lateral division CeL  
central amygdaloid nucleus, medial division CeM  
central amygdaloid nucleus, medial posteroventral part CeMPV  
central canal CC  
central cervical nucleus of the spinal cord CeCv  
central gray CG  
central gray of the pons CGPn

central gray, alpha part CGA  
 central gray, gamma part CGG  
 central gray, nucleus O CGO  
 central medial thalamic nucleus CM  
 central tegmental tract ctg  
 cerebellar white matter cbw  
 cerebellum Cb  
 cerebral cortex Cx  
 cerebral peduncle cp  
 choroid plexus chp  
 cingulate cortex, area 1 Cg1  
 cingulate cortex, area 2 Cg2  
 cingulum cg  
 circular nucleus Cir  
 cochlear root of the vestibulocochlear nerve 8cn  
 commissural nucleus of the inferior colliculus Com  
 commissural stria terminalis cst  
 commissure of the inferior colliculus cic  
 commissure of the superior colliculus csc  
 conterminal nucleus Ct  
 copula of the pyramis Cop  
 corpus callosum cc  
 crus 2 of the ansiform lobule Crus2  
 cuneate fasciculus cu  
 cuneate nucleus Cu  
 cuneate nucleus, rotundus part CuR  
 cuneiform nucleus CnF  
 cuneiform nucleus, dorsal part CnFD  
 cuneiform nucleus, intermediate part CnFI  
 cuneiform nucleus, ventral part CnFV

**D**  
 decussation of the superior cerebellar peduncle dscp  
 decussation of the trapezoid body tzd  
 deep cerebral white matter dcw  
 deep gray layer of the superior colliculus DpG  
 deep mesencephalic nucleus DpMe  
 deep white layer of the superior colliculus DpWh  
 dentate gyrus DG  
 dorsal 3rd ventricle D3V  
 dorsal acoustic stria das  
 dorsal cochlear nucleus DC  
 dorsal cochlear nucleus, deep core DCDp  
 dorsal cochlear nucleus, fusiform layer DCFu  
 dorsal cochlear nucleus, molecular layer DCMo  
 dorsal cortex of the inferior colliculus DCIC  
 dorsal corticospinal tract dcs  
 dorsal endopiriform nucleus DEn

dorsal fornix df  
 dorsal hippocampal commissure dhc  
 dorsal hypothalamic area DA  
 dorsal hypothalamic nucleus Do  
 dorsal intermediate entorhinal cortex DIEnt  
 dorsal lateral geniculate nucleus DLG  
 dorsal lateral olfactory tract dlo  
 dorsal longitudinal fasciculus dlf  
 dorsal motor nucleus of vagus 10N  
 dorsal nucleus (Clarke) D  
 dorsal nucleus of the lateral lemniscus DLL  
 dorsal paragigantocellular nucleus DPGi  
 dorsal part of claustrum DCI  
 dorsal peduncular cortex DP  
 dorsal peduncular pontine nucleus DPPn  
 dorsal raphe nucleus DR  
 dorsal raphe nucleus, dorsal part DRD  
 dorsal raphe nucleus, lateral part DRL  
 dorsal raphe nucleus, ventral part DRV  
 dorsal spinocerebellar fibres and olivocerebellar fibres dsc/oc  
 dorsal subiculum DS  
 dorsal tegmental bundle dtg  
 dorsal tegmental decussation dtgd  
 dorsal tegmental nucleus, central part DTgC  
 dorsal tegmental nucleus, pericentral part DTgP  
 dorsal tenia tecta DTT  
 dorsal tenia tecta layer 1 DTT1  
 dorsal terminal nucleus of the accessory optic tract DT  
 dorsal transition zone DTr  
 dorsal tuberomammillary nucleus DTM  
 dorsolateral entorhinal cortex DLEnt  
 dorsolateral orbital cortex DLO  
 dorsolateral periaqueductal gray DLPAG  
 dorsolateral pontine nucleus DLPn  
 dorsomedial hypothalamic nucleus DM  
 dorsomedial hypothalamic nucleus, dorsal part DMD  
 dorsomedial periaqueductal gray DMPAG  
 dorsomedial pontine nucleus DMPn  
 dorsomedial spinal trigeminal nucleus DMSp5  
 dorsomedial spinal trigeminal nucleus, dorsal part DMSp5D  
 dorsomedial spinal trigeminal nucleus, ventral part DMSp5V  
 dysgranular insular cortex DI

**E**  
 ectorhinal cortex Ect  
 ectotrigeminal nucleus E5  
 Edinger-Westphal nucleus EW  
 epipeduncular nucleus EpP  
 ependyma and subependymal layer E  
 epilemniscal nucleus ELM  
 epimicrocellular nucleus EMi  
 episupraoptic nucleus ESO  
 ethmoid thalamic nucleus Eth  
 external capsule ec  
 external cortex of the inferior colliculus ECIC  
 external cortex of the inferior colliculus. layer 1 ECIC1  
 external cuneate nucleus ECu  
 external globus pallidus EGP  
 external medullary lamina eml  
 external plexiform layer of the accessory olfactory bulb EPIA  
 external plexiform layer of the olfactory bulb EPI

**F**  
 facial motor nucleus, accessory part 7AcS  
 facial nerve 7n  
 facial nucleus 7N  
 facial nucleus, dorsal intermediate subnucleus 7DI  
 facial nucleus, dorsolateral subnucleus 7DL  
 facial nucleus, dorsomedial subnucleus 7DM  
 facial nucleus, lateral subnucleus 7L  
 facial nucleus, ventromedial subnucleus 7VM  
 fasciculus retroflexus fr  
 fasciola cinereum FC  
 field CA1 of the hippocampus CA1  
 field CA2 of the hippocampus CA2  
 field CA3 of the hippocampus CA3  
 fimbria of the hippocampus fi  
 flocculus Fl  
 forceps major of the corpus callosum fmj  
 forceps minor of the corpus callosum fmi  
 fornix f  
 frontal associ cortex FrA

**G**  
 gelatinous layer of the caudal spinal trigeminal nucleus Ge5  
 gemini hypothalamic nucleus Gem  
 genu of the corpus callosum gcc

gigantocellular reticular nucleus Gi  
 gigantocellular reticular nucleus, alpha part GiA  
 gigantocellular reticular nucleus, ventral part GiV  
 glomerular layer of the accessory olfactory bulb GIA  
 glomerular layer of the olfactory bulb GI  
 gracile fasciculus gr  
 granular cell layer of the olfactory bulb GrO  
 granular insular cortex GI  
 granular layer of the dentate gyrus GrDG  
 granule cell layer of cochlear nuclei GrC  
 granule cell layer of the accessory olfactory bulb GrA  
 granule cell layer of the cerebellum GrCb  
 gustatory thalamic nucleus Gus

**H**  
 habenular commissure hbc  
 hilus of the dentate gyrus Hil  
 hippocampal fissure hif  
 hypoglossal nucleus 12N  
 hypoglossal nucleus, geniohyoid part 12GH

**I**  
 indusium griseum IG  
 inferior cerebellar peduncle (restiform body) icp  
 inferior cerebellar peduncle decussation icpd  
 inferior colliculus IC  
 inferior olive, beta subnucleus IOBe  
 inferior olive, cap of Kooy of the medial nucleus IOK  
 inferior olive, dorsal nucleus IOD  
 inferior olive, dorsomedial cell column IODMC  
 inferior olive, dorsomedial cell group IODM  
 inferior olive, medial nucleus IOM  
 inferior olive, principal nucleus IOPr  
 inferior olive, subnucleus A of medial nucleus IOA  
 inferior olive, subnucleus B of medial nucleus IOB  
 inferior olive, ventrolateral protrusion IOVL  
 inferior salivatory nucleus IS  
 infralimbic cortex IL  
 infundibular recess IRe  
 infundibular stem InfS  
 interanterodorsal thalamic nucleus IAD  
 interanteromedial thalamic nucleus IAM  
 intercalated amygdaloid nucleus, main part IM  
 intercalated nuclei of the amygdala I  
 intercalated nucleus of the medulla In

intercrural fissure icf  
 interfascicular nucleus IF  
 intermediate acoustic stria ias  
 intermediate endopiriform nucleus IEn  
 intermediate geniculate nucleus IntG  
 intermediate interstitial nucleus of the medial longitudinal fasciculus II  
 intermediate reticular nucleus IRt  
 intermediate reticular nucleus, alpha part IRTA  
 intermediate white layer of the superior colliculus InWh  
 intermediodorsal thalamic nucleus IMD  
 intermediomedial cell column of the spinal cord IMM  
 intermedioventral thalamic commissure imvc  
 intermedius nucleus of the medulla InM  
 internal arcuate fibers ia  
 internal capsule ic  
 internal globus pallidus (intrapeduncular nucleus) IGP  
 internal medullary lamina iml  
 internal plexiform layer of the olfactory bulb IPI  
 interoculomotor nucleus I3  
 interpeduncular fossa IPF  
 interpeduncular nucleus IP  
 interpeduncular nucleus, apical subnucleus IPA  
 interpeduncular nucleus, caudal subnucleus IPC  
 interpeduncular nucleus, dorsolateral subnucleus IPDL  
 interpeduncular nucleus, dorsomedial subnucleus IPDM  
 interpeduncular nucleus, intermediate subnucleus IPI  
 interpeduncular nucleus, lateral subnucleus IPL  
 interpeduncular nucleus, rostral subnucleus IPR  
 interpedunculotegmental tract ipt  
 interposed cerebellar nucleus, anterior part IntA  
 interposed cerebellar nucleus, dorsolateral hump IntDL  
 interposed cerebellar nucleus, posterior part IntP  
 interstitial basal nucleus of the medulla IB  
 interstitial nucleus of Cajal InC  
 interstitial nucleus of Cajal, shell region InCSh  
 interstitial nucleus of the posterior limb of the anterior commissure IPAC  
 interstitial nucleus of the posterior limb of the anterior commissure, central part IPACC

interstitial nucleus of the posterior limb of the anterior commissure, lateral part IPACL  
 interstitial nucleus of the posterior limb of the anterior commissure, medial part IPACM  
 interstitial nucleus of the vestibulocochlear nerve I8  
 intertrigeminal nucleus I5  
 interventricular foramen IVF  
 intradecussational nucleus of the decussation of the superior cerebellar peduncle ID  
 islands of Calleja ICj  
 islands of Calleja, major island ICjM

**J**  
 juxtaolivary nucleus JxO  
 juxtaparaventricular part of lateral hypothalamus JPLH  
 juxtaestiform body jx

**K**  
 Killiker-Fuse nucleus KF

**L**  
 lacunosum moleculare layer of the hippocampus LMol  
 lambdoid septal zone Ld  
 lat amygdaloid nucleus La  
 lateral accumbens shell LAcbSh  
 lateral amygdaloid nucleus, dorsolateral part LaDL  
 lateral amygdaloid nucleus, ventrolateral part LaVL  
 lateral amygdaloid nucleus, ventromedial part LaVM  
 lateral cerebellar nucleus, parvicellular part LatPC  
 lateral cervical nucleus of the spinal cord LatC  
 lateral entorhinal cortex LEnt  
 lateral habenular nucleus, lateral part LHbL  
 lateral habenular nucleus, medial part LHbM  
 lateral hypothalamic area LH  
 lateral lemniscus ll  
 lateral mammillary nucleus LM  
 lateral olfactory tract lo  
 lateral orbital cortex LO  
 lateral parabrachial nucleus, central part LPBC  
 lateral parabrachial nucleus, crescent part LPBCr  
 lateral parabrachial nucleus, dorsal part LPBD  
 lateral parabrachial nucleus, medial part LPBM  
 lateral parabrachial nucleus, superior part LPBS

lateral parabrachial nucleus, ventral part LPBV  
 lateral paragigantocellular nucleus LPGi  
 lateral paragigantocellular nucleus, alpha part LPGIA  
 lateral parietal association cortex LPtA  
 lateral periaqueductal gray LPAG  
 lateral posterior thalamic nucleus LP  
 lateral posterior thalamic nucleus, laterocaudal part LPLC  
 lateral posterior thalamic nucleus, laterorostral part LPLR  
 lateral posterior thalamic nucleus, mediocaudal part LPMC  
 lateral posterior thalamic nucleus, mediorostral part LPMR  
 lateral recess of the 4th ventricle LR4V  
 lateral reticular nucleus LRt  
 lateral reticular nucleus, parvicellular part LRtPC  
 lateral reticular nucleus, subtrigeminal part LRtS5  
 lateral septal nucleus, dorsal part LSD  
 lateral septal nucleus, intermediate part LSI  
 lateral septal nucleus, ventral part LSV  
 lateral spinal nucleus LSp  
 lateral stripe of the striatum LSS  
 lateral superior olive LSO  
 lateral terminal nucleus of the accessory optic tract LT  
 lateral vestibular nucleus LVe  
 lateroanterior hypothalamic nucleus LA  
 laterodorsal tegmental nucleus LDTg  
 laterodorsal tegmental nucleus, ventral part LDTgV  
 laterodorsal thalamic nucleus LD  
 laterodorsal thalamic nucleus, dorsomedial part LDDM  
 laterodorsal thalamic nucleus, ventrolateral part LDVL  
 lateroventral periolivary nucleus LVPO  
 layer 1 of cortex 1  
 layer 1a of cortex 1a  
 layer 1b of cortex 1b  
 layer 4 of cortex 4  
 layer 5 of cortex 5  
 layer 5a of cortex 5a  
 layer 5b of cortex 5b  
 layer 6 of cortex 6  
 layer 6a of cortex 6a  
 layer 6b of cortex 6b  
 layers 3 and 4 of cortex 3/4  
 lemina terminalis LTer

linear nucleus of the medulla Li  
 lithoid nucleus Lth  
 locus coeruleus LC  
 longitudinal fasciculus of the pons lfp  
 lucidum layer of the hippocampus Lu

**M**  
 magnocellular nucleus of the lateral hypothalamus MCLH  
 magnocellular nucleus of the posterior commissure MCPC  
 magnocellular preoptic nucleus MCPO  
 mammillary peduncle mp  
 mammillary recess of the 3rd ventricle MRe  
 mammillotegmental tract mtg  
 mammillothalamic tract mt  
 marginal zone of the medial geniculate MZMG  
 matrix region of the medulla Mx  
 medial accessory oculomotor nucleus MA3  
 medial amygdaloid nucleus Me  
 medial amygdaloid nucleus, ant dorsal MeAD  
 medial amygdaloid nucleus, anteroventral part MeAV  
 medial amygdaloid nucleus, posterodorsal part MePD  
 medial amygdaloid nucleus, posteroventral part MePV  
 medial cerebellar nucleus, caudomedial part MedCM  
 medial cerebellar nucleus, dorsolateral protuberance MedDL  
 medial corticohypothalamic tract mch  
 medial eminence, external layer MEE  
 medial eminence, internal layer MEI  
 medial entorhinal cortex MEnt  
 medial entorhinal cortex, ventral part MEntV  
 medial forebrain bundle mfb  
 medial forebrain bundle, 'a' component mfba  
 medial forebrain bundle, 'b' component mfbb  
 medial geniculate nucleus MG  
 medial geniculate nucleus, dorsal part MGD  
 medial geniculate nucleus, medial part MGM  
 medial geniculate nucleus, ventral part MGv  
 medial habenular nucleus MHb  
 medial lemniscus ml  
 medial lemniscus decussation mld  
 medial longitudinal fasciculus mlf  
 medial mammillary nucleus, lateral part ML

medial mammillary nucleus, medial part MM  
 medial mammillary nucleus, median part MnM  
 medial orbital cortex MO  
 medial parabrachial nucleus MPB  
 medial paralemniscial nucleus MPL  
 medial parietal association cortex MPtA  
 medial preoptic nucleus MPO  
 medial preoptic nucleus, central part MPOC  
 medial preoptic nucleus, lateral part MPOL  
 medial preoptic nucleus, medial part MPOM  
 medial pretectal nucleus MPT  
 medial septal nucleus MS  
 medial superior olive MSO  
 medial terminal nucleus of the accessory optic tract MT  
 medial tuberal nucleus MTu  
 medial vestibular nucleus MVe  
 medial vestibular nucleus, magnocellular part MVeMC  
 medial vestibular nucleus, parvicellular part MVePC  
 median accessory nucleus of the medulla MnA  
 median eminence ME  
 median preoptic nucleus MnPO  
 mediodorsal thalamic nucleus MD  
 mediodorsal thalamic nucleus, central part MDC  
 mediodorsal thalamic nucleus, lateral part MDL  
 mediodorsal thalamic nucleus, medial part MDM  
 mediodorsal thalamic nucleus, paralaminar part MDPL  
 medioventral periolivary nucleus MVPO  
 medullary reticular nucleus, dorsal part MdD  
 medullary reticular nucleus, ventral part MdV  
 mesencephalic trigeminal nucleus Me5  
 mesencephalic trigeminal tract me5  
 microcellular tegmental nucleus MiTg  
 middle cerebellar peduncle mcp  
 middle cerebral artery mcer  
 mitral cell layer of the accessory olfactory bulb MiA  
 mitral cell layer of the olfactory bulb Mi  
 molecular layer of the cerebellum MoCb  
 molecular layer of the dentate gyrus MoDG  
 molecular layer of the subiculum MoS  
 motor root of the trigeminal nerve m5  
 motor trigeminal nucleus 5N  
 motor trigeminal nucleus, accessory subnucleus 5Acs  
 motor trigeminal nucleus, masseter part 5Ma  
 motor trigeminal nucleus, mylohyoid part 5MHy  
 motor trigeminal nucleus, temporalis part 5Te  
 motor trigeminal nucleus, ventromedial part 5VM

**N**  
 navicular nucleus of the basal forebrain Nv  
 nervus intermedius component of the facial nerve 7ni  
 nigrostriatal bundle ns  
 nucleus of Darkschewitsch Dk  
 nucleus of origin of efferents of the vestibular nerve Eve  
 nucleus of Roller Ro  
 nucleus of the ansa lenticularis AL  
 nucleus of the brachium of the inferior colliculus BIC  
 nucleus of the central acoustic tract CAT  
 nucleus of the commissural stria terminalis CST  
 nucleus of the dorsal hipp commissure DHC  
 nucleus of the fields of Forel F  
 nucleus of the horizontal limb of the diagonal band HDB  
 nucleus of the lateral olfactory tract LOT  
 nucleus of the lateral olfactory tract, dorsal part LOTD  
 nucleus of the lateral olfactory tract, layer 1 LOT1  
 nucleus of the optic tract OT  
 nucleus of the posterior commissure PCom  
 nucleus of the solitary tract Sol  
 nucleus of the solitary tract, central part SolCe  
 nucleus of the solitary tract, commissural part SolC  
 nucleus of the solitary tract, gelatinous part SolG  
 nucleus of the solitary tract, intermediate part SolIM  
 nucleus of the solitary tract, interstitial part SolI  
 nucleus of the solitary tract, lateral part SolL  
 nucleus of the solitary tract, rostralateral part SolRL  
 nucleus of the solitary tract, ventrolateral part SolVL  
 nucleus of the stria medullaris SM  
 nucleus of the trapezoid body Tz  
 nucleus of the vertical limb of the diagonal band VDB  
 nucleus X X  
 nucleus Y Y  
 nucleus Z Z

**O**  
 obex Obex  
 oculomotor nerve 3n  
 oculomotor nucleus, parvicellular part 3PC

olfactory bulb OB  
 olfactory nerve layer ON  
 olfactory tubercle Tu  
 olfactory tubercle layer 1 Tu1  
 olfactory ventricle (olfactory part of lateral ventricle) OV  
 olivary pretectal nucleus OPT  
 olivocerebellar tract oc  
 olivocochlear bundle ocb  
 optic chiasm och  
 optic nerve 2n  
 optic nerve layer of the superior colliculus Op  
 optic tract opt  
 oriens layer of the hippocampus Or  
 oval paracentral thalamic nucleus OPC

**P**  
 paraabducens nucleus Pa6  
 parabigeminal nucleus PBG  
 parabrachial pigmented nucleus of the VTA PBP  
 paracentral thalamic nucleus PC  
 paracochlear glial substance PCGS  
 paracommissural nucleus of the posterior commissure PaC  
 parafascicular thalamic nucleus PF  
 parafloccular sulcus pfs  
 paraflocculus PFl  
 parainterfascicular nucleus of the VTA PIF  
 paralambdoid septal nucleus PLd  
 paralemniscial nucleus PL  
 paramedian lobule PM  
 paramedian raphe nucleus PMnR  
 paramedian reticular nucleus PMn  
 paramedian sulcus pms  
 paranigral nucleus of the VTA PN  
 parapyramidal nucleus PPy  
 parabrual nucleus PaR  
 parasolitary nucleus PSol  
 parastrial nucleus PS  
 parasubiculum PaS  
 parasubthalamic nucleus PSTh  
 paratenial thalamic nucleus PT  
 paraterete nucleus PTe  
 paratrigeminal nucleus Pa5  
 paratrochlear nucleus Pa4  
 paraventricular hypoth nucleus Pa  
 paraventricular hypothalamic nucleus, anterior parvicellular part PaAP

paraventricular hypothalamic nucleus, dorsal cap PaDC  
 paraventricular hypothalamic nucleus, lateral magnocellular part PaLM  
 paraventricular hypothalamic nucleus, medial magnocellular part PaMM  
 paraventricular hypothalamic nucleus, medial parvicellular part PaMP  
 paraventricular hypothalamic nucleus, posterior part PaPo  
 paraventricular hypothalamic nucleus, ventral part PaV  
 paraventricular thalamic nucleus PV  
 paraventricular thalamic nucleus, anterior part PVA  
 paraventricular thalamic nucleus, posterior part PVP  
 paraxiphoid nucleus of thalamus PaXi  
 parietal cortex, posterior area, caudal part PtPC  
 parietal cortex, posterior area, dorsal part PtPD  
 parietal cortex, posterior area, rostral part PtPR  
 parvicellular motor trigeminal nucleus PC5  
 parvicellular reticular nucleus PCRt  
 parvicellular reticular nucleus, alpha part PCRtA  
 peduncular part of lateral hypothalamus PLH  
 pedunclopontine tegmental nucleus PPTg  
 periaqueductal gray PAG  
 perifacial zone P7  
 perifornical nucleus PeF  
 perifornical part of lateral hypothalamus PeFLH  
 perilemniscial nucleus, ventral part PLV  
 periolivary horn POH  
 peripeduncular nucleus PP  
 perirhinal cortex PRh  
 peritrigeminal zone P5  
 periventricular gray PVG  
 periventricular hypothalamic nucleus Pe  
 periventricular hypothalamic nucleus, anterior parvicellular part PeAP  
 pineal gland Pi  
 pineal stalk PiSt  
 piriform cortex Pir  
 piriform cortex, layer 1 Pir1  
 piriform cortex, layer 1a Pir1a  
 plioglial part of periaqueductal gray PIPAG  
 polymorph layer of the dentate gyrus PoDG  
 pontine nuclei Pn  
 pontine raphe nucleus PnR  
 pontine reticular nucleus, caudal part PnC

pontine reticular nucleus, oral part PnO  
 posterior cerebral artery pcer  
 posterior commissure pc  
 posterior hypothalamic area PHA  
 posterior hypothalamic area, dorsal part PHD  
 posterior hypothalamic nucleus PH  
 posterior intralaminar thalamic nucleus PIL  
 posterior limitans thalamic nucleus PLi  
 posterior lobe of pituitary PPit  
 posterior pretectal nucleus PPT  
 posterior superior fissure psf  
 posterior thalamic nuclear group Po  
 posterior thalamic nuclear group, triangular part PoT  
 posterodorsal preoptic nucleus PDPO  
 posterodorsal raphe nucleus PDR  
 posterodorsal tegmental nucleus PDTg  
 posterolateral cortical amygdaloid nucleus PLCo  
 posterolateral cortical amygdaloid nucleus, layer 1 PLCo1  
 posterolateral fissure plf  
 posteromedial cortical amygdaloid nucleus PMCo  
 posteromedian thalamic nucleus PoMn  
 postsubiculum Post  
 pre-Botzinger complex PrBo  
 precommissural fornix pcf  
 precommissural nucleus PrC  
 preculminate fissure pcuf  
 prelimbic cortex PrL  
 premammillary nucleus, dorsal part PMD  
 premammillary nucleus, ventral part PMV  
 preoptic recess of the 3rd ventricle P3V  
 prepyramidal fissure ppf  
 prerubral field PR  
 presubiculum PrS  
 primary auditory cortex Au1  
 primary fissure prf  
 primary motor cortex M1  
 primary somatosensory cortex S1  
 primary somatosensory cortex, barrel field S1BF  
 primary somatosensory cortex, dysgranular zone S1DZ  
 primary somatosensory cortex, forelimb region S1FL  
 primary somatosensory cortex, hindlimb region S1HL  
 primary somatosensory cortex, jaw region S1J  
 primary somatosensory cortex, jaw region, oral surface S1JO

primary somatosensory cortex, oral dysgranular zone S1DZO  
 primary somatosensory cortex, shoulder region S1Sh  
 primary somatosensory cortex, shoulder/neck region S1ShNc  
 primary somatosensory cortex, trunk region S1Tr  
 primary somatosensory cortex, upper lip region S1ULp  
 primary visual cortex V1  
 primary visual cortex, binocular area V1B  
 primary visual cortex, monocular area V1M  
 principal mammillary tract pm  
 principal sensory trigeminal nucleus Pr5  
 principal sensory trigeminal nucleus, dorsomedial part Pr5DM  
 principal sensory trigeminal nucleus, ventrolateral part Pr5VL  
 Purkinje cell layer of the cerebellum Pk  
 pyramidal cell layer of the hippocampus Py  
 pyramidal decussation pyd  
 pyramidal tract py

**R**  
 radiatum layer of the hippocampus Rad  
 raphe interpositus nucleus RIP  
 raphe magnus nucleus RMg  
 raphe obscurus nucleus ROb  
 raphe pallidus nucleus RPa  
 recess of the inferior colliculus ReIC  
 red nucleus R  
 red nucleus, magnocellular part RMC  
 red nucleus, parvocellular part RPC  
 region where VA and VL overlap VA/VL  
 reticulostriatal nucleus RtSt  
 reticular thalamic nucleus Rt  
 reticulotegmental nucleus of the pons RtTg  
 reticulotegmental nucleus of the pons, lateral part RtTgL  
 retroambiguus nucleus RAmb  
 retrochiasmatic area, lateral part RChL  
 retroethmoid nucleus REth  
 retrolemniscal nucleus RL  
 retroparafascicular nucleus RPF  
 retrorubral field RRF  
 retrorubral nucleus RR  
 retrosplenial dysgranular cortex RSD  
 retrosplenial granular cortex RSG

retrosplenial granular cortex, c region RSGc  
 retrouniens area RRe  
 reuniens thalamic nucleus Re  
 rhabdoid nucleus Rbd  
 rhinal fissure rf  
 rhinal incisure ri  
 rhomboid thalamic nucleus Rh  
 root of abducens nerve 6n  
 root of accessory nerve 11n  
 root of hypoglossal nerve 12n  
 rostral interstitial nucleus of medial longitudinal fasciculus RI  
 rostral ventral respiratory group RVRG  
 rostroventrolateral reticular nucleus RVL  
 rostrum of the corpus callosum rcc  
 rubrospinal tract rs

**S**  
 scaphoid thalamic nucleus Sc  
 secondary auditory cortex, dorsal area AuD  
 secondary auditory cortex, ventral area AuV  
 secondary fissure sf  
 secondary motor cortex M2  
 secondary somatosensory cortex S2  
 secondary visual cortex, lateral area V2L  
 secondary visual cortex, mediolateral area V2ML  
 secondary visual cortex, mediomedial area V2MM  
 sensory root of the trigeminal nerve s5  
 septofimbrial nucleus SFi  
 septohippocampal nucleus SHi  
 septohypothalamic nucleus SHy  
 simple lobule Sim  
 simple lobule A SimA  
 simple lobule B SimB  
 simplex fissure simf  
 solitary nucleus, dorsolateral part SolDL  
 solitary nucleus, ventral part SolV  
 solitary tract sol  
 sphenoid nucleus Sph  
 spinal trigeminal nucleus, caudal part Sp5C  
 spinal trigeminal nucleus, interpolar part Sp5I  
 spinal trigeminal nucleus, oral part Sp5O  
 spinal trigeminal tract sp5  
 spinal vestibular nucleus SpVe  
 splenium of the corpus callosum scc  
 stigmoid hypothalamic nucleus Stg  
 stratum lucidum of the hippocampus SLu  
 stria medullaris of the thalamus sm

stria terminalis st  
 strial part of the preoptic area StA  
 striohypothalamic nucleus StHy  
 subbrachial nucleus SubB  
 subcoeruleus nucleus, alpha part SubCA  
 subcoeruleus nucleus, dorsal part SubCD  
 subcoeruleus nucleus, ventral part SubCV  
 subcommissural organ SCO  
 subfornical organ SFO  
 subgeniculate nucleus SubG  
 subiculum S  
 subiculum, transition area STr  
 subincertal nucleus SubI  
 sublenticular extended amygdala EA  
 sublenticular extended amygdala, central part EAC  
 sublenticular extended amygdala, medial part EAM  
 submammillothalamic nucleus SMT  
 submedius thalamic nucleus Sub  
 submedius thalamic nucleus, dorsal part SubD  
 submedius thalamic nucleus, ventral part SubV  
 subparafascicular thalamic nucleus, parvicellular part SPFPC  
 subparaventricular zone of the hypothalamus SPa  
 subpeduncular tegmental nucleus SPTg  
 subpostrema area SubP  
 substantia innominata SI  
 substantia innominata, basal part SIB  
 substantia innominata, dorsal part SID  
 substantia innominata, ventral part SIV  
 substantia nigra, compact part, dorsal tier SNCD  
 substantia nigra, compact part, medial tier SNCM  
 substantia nigra, lateral part SNL  
 substantia nigra, reticular part SNR  
 subthalamic nucleus STh  
 superficial gray layer of the superior colliculus SuG  
 superior cerebellar peduncle (brachium conjunctivum) scp  
 superior cerebellar peduncle, descending limb scpd  
 superior medullary velum SMV  
 superior paraolivary nucleus SPO  
 superior salivatory nucleus SuS  
 superior thalamic radiation str  
 superior vestibular nucleus SuVe  
 suprachiasmatic nucleus SCh  
 suprachiasmatic nucleus, ventromedial part SChVM  
 suprachiasmatic nucleus, dorsolateral part SChDL  
 suprageniculate thalamic nucleus SG  
 supragenual nucleus SGe  
 supramammillary decussation sumd



supramammillary nucleus SuM  
 supramammillary nucleus, lateral part SuML  
 supramammillary nucleus, medial part SuMM  
 supraoculomotor cap Su3C  
 supraoculomotor periaqueductal gray Su3  
 supraoptic decussation sod  
 supraoptic nucleus SO  
 supraoptic nucleus, retrochiasmatic part SOR  
 supratrigeminal nucleus Su5

**T**  
 tectospinal tract ts  
 temporal associatin cortex TeA  
 terete hypothalamic nucleus Te  
 transverse fibers of the pons tfp  
 trapezoid body tz  
 triangular nucleus Tr  
 triangular septal nucleus TS  
 trigeminal ganglion 5Gn  
 trigeminal transition zone 5Tr  
 trigeminal-solitary transition zone 5Sol  
 trigeminothalamic tract tth  
 trochlear nerve 4n  
 trochlear nerve decussation 4d  
 trochlear nucleus 4N  
 trochlear nucleus shell region 4Sh  
 tuberal region of lateral hypothalamus TuLH

**U**  
 uncinate fasciculus decussation und  
 uncinate fasciculus of the cerebellum un

**V**  
 vagus nerve 10n  
 vascular organ of the lamina terminalis VOLT  
 vein v  
 ventral anterior thalamic nucleus VA  
 ventral cochlear nucleus, anterior part VCA  
 ventral cochlear nucleus, capsular part VCCap  
 ventral cochlear nucleus, granule cell layer VCAGr  
 ventral cochlear nucleus, posterior part VCP  
 ventral cochlear nucleus, posterior part, octopus cell area VCPO  
 ventral endopiriform nucleus VEn  
 ventral hippocampal commissure vhc  
 ventral intermediate entorhinal cortex VIEnt  
 ventral lateral geniculate nucleus VLG  
 ventral lateral geniculate nucleus, layer 1 VLG1  
 ventral linear nucleus of the thalamus VLi  
 ventral nucleus of the lat lemniscus VLL  
 ventral orbital cortex VO  
 ventral pallidum VP  
 ventral part of claustrum VCl

ventral posterior nucleus of the thalamus,  
 parvicellular part VPPC  
 ventral posterolateral thalamic nucleus VPL  
 ventral posteromedial thalamic nucleus VPM  
 ventral reuniens thalamic nucleus VRe  
 ventral spinocerebellar tract vsc  
 ventral spinocerebellar tract decussation vscl  
 ventral subiculum VS  
 ventral tegmental area VTA  
 ventral tegmental area, rostral part VTAR  
 ventral tegmental decussation vtgd  
 ventral tegmental nucleus VTg  
 ventral tenia tecta VTT  
 ventral tenia tecta, layer 1 VTT1  
 ventral tuberomammillary nucleus VTM  
 ventrolateral preoptic nucleus VLPO  
 ventrolateral thalamic nucleus VL  
 ventromedial hypothalamic nucleus VMH  
 ventromedial hypothalamic nucleus, anterior part VMHA  
 ventromedial hypothalamic nucleus, central part VMHC  
 ventromedial hypothalamic nucleus, dorsomedial part VMHDM  
 ventromedial hypothalamic nucleus, ventrolateral part VMHVL  
 ventromedial nucleus of the hypothalamus shell VMHSh

ventromedial preoptic nucleus VMPO  
 ventromedial thalamic nucleus VM  
 vertebral artery vert  
 vestibular root of the vestibulocochlear nerve 8vn  
 vestibulocerebellar nucleus VeCb  
 vestibulocochlear ganglion 8Gn  
 vestibulocochlear nerve 8n  
 vestibulomesencephalic tract veme  
 vestibulospinal tract vesp  
 vomeronasal nerve vn  
 vomeronasal nerve layer VN  
 ventrolateral hypothalamic tract vlh

**X**  
 xiphoid thalamic nucleus Xi

**Z**  
 zona incerta ZI  
 zona incerta, caudal part ZIC  
 zona incerta, dorsal part ZID  
 zona incerta, rostral part ZIR  
 zona incerta, ventral part ZIV  
 zona layer of the superior colliculus Zo  
 zona limitans ZL  
 zonal layer of the superior colliculus GI

# Index of Abbreviations

The abbreviations are listed in alphabetical order. Each abbreviation is followed by the structure name and the number of the figures on which the abbreviation appears.

1 layer 1 of cortex 9-21, 30-34, 52, 54-55, 59-75, 94, 99-109  
 1b layer 1b of cortex 8  
 1Cb 1st cerebellar lobule (lingula) 112-128  
 2 layer 2 of cortex 7-75, 94, 99-109  
 2/3Cb 2nd and 3rd cerebellar lobules 106-109  
 2bCb 2b cerebellar lobule 110  
 2Cb 2nd cerebellar lobule 103-120  
 3 layer 3 of cortex 8-75, 99-109  
 3/4 layers 3 and 4 of cortex 94  
 3/4Cb 3rd and 4th cerebellar lobules 127-129  
 3Cb 3rd cerebellar lobule 106-120, 122, 124-126, 134  
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 3n oculomotor nerve 79-82  
 3PC oculomotor nucleus, parvicellular part 84-91  
 3V 3rd ventricle 29-73  
 4 layer 4 of cortex 8-10, 30-33, 52  
 4/5Cb 4th and 5th cerebellar lobules 106-109  
 4Cb 4th cerebellar lobule 108-126  
 4N trochlear nucleus 92-95  
 4n trochlear nerve 94-112  
 4Sh trochlear nucleus shell region 92-95  
 4V 4th ventricle 104-146  
 5 layer 5 of cortex 52  
 5a layer 5a of cortex 52, 94  
 5Acs motor trigeminal nucleus, accessory subnucleus 113-116  
 5b layer 5b of cortex 52, 94  
 5Cb 5th cerebellar lobule 109-120, 122-131  
 5Ma motor trigeminal nucleus, masseter part 109-115  
 5MHy motor trigeminal nucleus, mylohyoid part 109-110  
 5N motor trigeminal nucleus 108  
 5Sol trigeminal-solitary transition zone 122-148  
 5Te motor trigeminal nucleus, temporalis part 109-115

5Tr trigeminal transition zone 113-117  
 5Vm motor trigeminal nucleus, ventromedial part 111-113  
 6 layer 6 of cortex 94  
 6a layer 6a of cortex 52  
 6aCb 6a cerebellar lobule 121-127, 129-133  
 6Acs accessory abducens nucleus 117-120  
 6b layer 6b of cortex 52  
 6bCb 6b cerebellar lobule 134-138  
 6Cb 6th cerebellar lobule 128, 133  
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 6N abducens nucleus 117-119  
 6n root of abducens nerve 115-116  
 7Acs facial motor nucleus, accessory part 120-125, 128-132  
 7Cb 7th cerebellar lobule 137-150  
 7DI facial nucleus, dorsal intermediate subnucleus 123-131  
 7DL facial nucleus, dorsolateral subnucleus 122-132  
 7DM facial nucleus, dorsomedial subnucleus 121-131  
 7L facial nucleus, lateral subnucleus 122-134  
 7n facial nerve 111-119  
 7ni nervus intermedius component of the facial nerve 121-123  
 7VI facial nucleus, ventral intermediate subnucleus 121-132  
 7VM facial nucleus, ventromedial subnucleus 121-130  
 8Cb 8th cerebellar lobule 135-155  
 8cn cochlear root of the vestibulocochlear nerve 112-117, 121-123, 126-127  
 8vn vestibular root of the vestibulocochlear nerve 115-125  
 9a,bCb 9th cerebellar lobule, a and b 140-159  
 9Cb 9th cerebellar lobule 131-133, 135-139  
 9cCb 9th cerebellar lobule, c 140-158  
 9n glossopharyngeal nerve 130-132  
 10Cb 10th cerebellar lobule (nodule) 129-149  
 10N dorsal motor nucleus of vagus 136-156  
 10n vagus nerve 132-133, 135-137, 139, 141-143, 147, 149-150  
 11N accessory nerve nucleus 157-161  
 12GH hypoglossal nucleus, geniohyoid part 147-156  
 12N hypoglossal nucleus 138-157  
 12n root of hypoglossal nerve 137, 141, 144, 149-155

## A

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 A13 A13 dopamine cells 50-57  
 A2 A2 noradrenaline cells 155-161  
 A5 A5 noradrenaline cells 108-113, 115-125, 127  
 A7 A7 noradrenaline cells 102-108  
 AA anterior amygdaloid area 35-48  
 ac anterior commissure 34-37  
 aca anterior commissure, anterior part 8-33  
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 AcbR accumbens nucleus, rostral pole 10  
 AcbSh accumbens nucleus, shell 11-29  
 acer anterior cerebral artery 13-20, 29-30, 35-37  
 aci anterior commissure, intrabulbar part 2-7  
 ACo anterior cortical amygdaloid nucleus 37-55  
 acp anterior commissure, posterior part 34-43  
 AD anterodorsal thalamic nucleus 43-52  
 af amygdaloid fissure 46-47, 50, 54, 68-80  
 AHA anterior hypothalamic area, anterior part 41-45  
 AHC anterior hypothalamic area, central part 46-50  
 AHiAL amygdalohippocampal area, anterolateral part 59-66  
 AHiPL amygdalohippocampal area, posterolateral 67-70  
 AHiPM amygdalohippocampal area, posteromedial part 67-81  
 AHP anterior hypothalamic area, posterior part 47-52  
 AID agranular insular cortex, dorsal part 8-32  
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 AmbC ambiguous nucleus, compact part 133-140  
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 AmbSC ambiguous nucleus, subcompact part 141-145  
 AMV anteromedial thalamic nucleus, ventral part 45-49

AngT angular thalamic nucleus 53-55  
 ANS accessory neurosecretory nuclei 43-50  
 AOD anterior olfactory nucleus, dorsal part 4-7  
 AOE anterior olfactory nucleus, external part 3-5  
 AOL anterior olfactory nucleus, lateral part 3-8  
 AOM anterior olfactory nucleus, medial part 4-7  
 AOP anterior olfactory nucleus, posterior part 9-11  
 aot accessory olfactory tract 46  
 AOV anterior olfactory nucleus, ventral part 4-5  
 AOVP anterior olfactory nucleus, ventroposterior part 6-9  
 AP area postrema 147-152  
 APF anterior perifornical nucleus 39-41  
 APir amygdalopiriform transition area 64-88  
 apmf ansoparamedian fissure 139-148, 150  
 APT anterior pretectal nucleus 80-82  
 APTD anterior pretectal nucleus, dorsal part 69-79  
 APTV anterior pretectal nucleus, ventral part 70-79  
 Aq aqueduct 74-103  
 Arc arcuate hypothalamic nucleus 47-48  
 ArcD arcuate hypothalamic nucleus, dorsal part 49-61  
 ArcL arcuate hypothalamic nucleus, lateral part 49-61  
 ArcLP arcuate hypothalamic nucleus, lateroposterior part 62-68  
 ArcM arcuate hypothalamic nucleus, medial part 49-61  
 ArcMP arcuate hypothalamic nucleus, medial posterior part 62-69  
 asc7 ascending fibers of the facial nerve 122-126  
 asp anterior spinal artery 137, 139-142, 144-145  
 ASt amygdalostriatal transition area 46-50, 54-61  
 ATg anterior tegmental nucleus 96-98  
 Au1 primary auditory cortex 60-90  
 AuD secondary auditory cortex, dorsal area 58-90  
 AuV secondary auditory cortex, ventral area 60-90  
 AV anteroventral thalamic nucleus 42  
 AVDM anterovent thalamic nucleus, dorsomedial part 43-53  
 AVPe anteroventral periventricular nucleus 32-34  
 AVVL anteroventral thalamic nucleus, ventrolateral part 43-51  
 azac zygous anterior cerebral artery 10-12  
 azp zygous pericallosal artery 10-18



## B

- B basal nucleus (Meynert) 36-55, 57-59  
 B9 B9 serotonin cells 90-96, 100  
 BAC bed nucleus of the anterior commissure 37-40  
 BAOT bed nucleus of the accessory olfactory tract 46-51  
 Bar Barrington's nucleus 108-112  
 bas basilar artery 85-96, 98-135  
 BIC nucleus of the brachium of the inferior colliculus 88-98  
 bic brachium of the inferior colliculus 82-102  
 BL basolateral amygdaloid nucleus 74-75  
 BLA basolateral amygdaloid nucleus, anterior part 46-61  
 BLP basolateral amygdaloid nucleus, posterior part 53-73  
 BLV basolateral amygdaloid nucleus, ventral part 49-61  
 BMA basomedial amygdaloid nucleus, anterior part 43-56  
 BMP basomedial amygdaloid nucleus, posterior part 54-67  
 Bo Botzinger complex 133-137  
 bsc brachium of the superior colliculus 69-71, 74-86

## C

- C1 C1 adrenaline cells 131-146  
 C1/A1 C1 adrenaline cells and A1 noradrenaline cells 147-150  
 C2 C2 adrenaline cells 138-139, 141-143  
 C3 C3 adrenaline cells 135-137  
 CA1 field CA1 of the hippocampus 52-66, 68-90  
 CA2 field CA2 of the hippocampus 52-61, 63-77  
 CA3 field CA3 of the hippocampus 47-81, 83-84  
 CAT nucleus of the central acoustic tract 105-109  
 CB cell bridges of the ventral striatum 24-34  
 cbc cerebellar commissure 120-122, 124, 126  
 cbw cerebellar white matter 108-156  
 CC central canal 147-161  
 cc corpus callosum 21-74  
 CeC central amygdaloid nucleus, capsular part 46-61  
 CeCv central cervical nucleus of the spinal cord 149-161  
 CeL central amygdaloid nucleus, lateral division 49-60  
 CeM central amygdaloid nucleus, medial division 45-57  
 CEnt caudomedial entothinal cortex 89-112  
 CG central gray 106-108  
 cg cingulum 11-83  
 Cg1 cingulate cortex, area 1 8-46  
 Cg2 cingulate cortex, area 2 14-46  
 CGA central gray, alpha part 109-118  
 CGB central gray, beta part 109-115  
 CGG central gray, gamma part 115-118  
 CGO central gray, nucleus O 110-114  
 CGPn central gray of the pons 113-115  
 chp choroid plexus 34-41, 43-76, 118-119, 124-143, 145-146  
 CI caudal interstitial nucleus of the medial longitudinal fasciculus 122-128  
 CIC central nucleus of the inferior colliculus 98-109  
 cic commissure of the inferior colliculus 98-102  
 Cir circular nucleus 45  
 CL centrolateral thalamic nucleus 51-69  
 Cl claustrum 8-14  
 CLi caudal linear nucleus of the raphe 85-94  
 cll commissure of the lateral lemniscus 100-103  
 CM central medial thalamic nucleus 44-66  
 CnFD cuneiform nucleus, dorsal part 101-106  
 CnFI cuneiform nucleus, intermediate part 98-105  
 CnFV cuneiform nucleus, ventral part 98-105  
 Com commissural nucleus of the inferior colliculus 99-102  
 Cop copula of the pyramis 135-154  
 cp cerebral peduncle 61-93  
 CPO caudal periolivary nucleus 121  
 CPu caudate putamen (striatum) 12-66  
 Crus1 crus 1 of the ansiform lobule 117-141  
 Crus2 crus 2 of the ansiform lobule 132-150  
 csc commissure of the superior colliculus 76- 86  
 CST nucleus of the commissural stria terminalis 35  
 cst commissural stria terminalis 39, 41-64  
 Ct conterminal nucleus 152-155  
 Cu cuneate nucleus 140-161  
 cu cuneate fasciculus 143-162  
 CuR cuneate nucleus, rotundus part 147-154  
 CVL caudoventrolateral reticular nucleus 138-145, 150-151  
 Cx cerebral cortex 112-113  
 CxA1 cortex-amygdala transition zone, layer 1 34-47

## D

- D dorsal nucleus (Clarke) 162c-d  
 D3V dorsal 3rd ventricle 42-76  
 DA dorsal hypothalamic area 52-60  
 das dorsal acoustic stria 126-129  
 DCDp dorsal cochlear nucleus, deep core 121-130  
 DCFu dorsal cochlear nucleus, fusiform layer 121-131  
 DCGr dorsal cochlear nucleus, granular layer 121  
 DCIC dorsal cortex of the inferior colliculus 101-110  
 DCl dorsal part of claustrum 15-49  
 DCMo dorsal cochlear nucleus, molecular layer 121-131  
 dcs dorsal corticospinal tract 160-162  
 dcw deep cerebral white matter 55-98  
 DEn dorsal endopiriform nucleus 8-70  
 df dorsal fornix 40-68  
 DG dentate gyrus 66  
 dhc dorsal hippocampal commissure 49-92  
 DI dysgranular insular cortex 10-57  
 DIEnt dorsal intermediate entorhinal cortex 85-95  
 Dk nucleus of Darkschewitsch 72-82  
 DLEnt dorsolateral entorhinal cortex 85-103  
 DLG dorsal lateral geniculate nucleus 60-78  
 DLL dorsal nucleus of the lateral lemniscus 100-106  
 DLO dorsolateral orbital cortex 6-7  
 dlo dorsal lateral olfactory tract 3-4  
 DLPAG dorsolateral periaqueductal gray 82-101  
 DM dorsomedial hypothalamic nucleus 63-64  
 DMC dorsomedial hypothalamic nucleus, compact part 58-62  
 DMD dorsomedial hypothalamic nucleus, dorsal part 52-62  
 DMPAG dorsomedial periaqueductal gray 77-106  
 DMSp5 dorsomedial spinal trigeminal nucleus 120-140  
 DMTg dorsomedial tegmental area 105-115  
 DMV dorsomedial hypothalamic nucleus, ventral part 59-62  
 DP dorsal peduncular cortex 9-15  
 DpG deep gray layer of the superior colliculus 78-100  
 DPGi dorsal paragigantocellular nucleus 120-132  
 DpMe deep mesencephalic nucleus 81-100  
 DPO dorsal periolivary region 113-116, 118-119  
 DPPn dorsal peduncular pontine nucleus 102

- DpWh deep white layer of the superior colliculus 79-100  
 DR dorsal raphe nucleus 90-91, 111  
 DRC dorsal raphe nucleus, caudal part 104-110  
 DRD dorsal raphe nucleus, dorsal part 92-103  
 DRL dorsal raphe nucleus, lateral part 93-100  
 DRV dorsal raphe nucleus, ventral part 93-103  
 DS dorsal subiculum 74-90  
 dsc dorsal spinocerebellar tract 150-161  
 dsc/oc dorsal spinocerebellar fibres and olivocerebellar fibres 137-149  
 dscp decussation of the superior cerebellar peduncle 96-98  
 DT dorsal terminal nucleus of the accessory optic tract 83-87  
 DTgC dorsal tegmental nucleus, central part 107-110  
 dtgd dorsal tegmental decussation 84-89  
 DTgP dorsal tegmental nucleus, pericentral part 104-110  
 DTM dorsal tuberomammillary nucleus 63-65  
 DTr dorsal transition zone 8-9  
 DTT dorsal tenia tecta 9-14  
 DTT1 dorsal tenia tecta layer 1 8

## E

- E ependyma and subependymal layer 1-5, 13-39  
 E/OV ependymal and subependymal layer/olfactory ventricle 6-12  
 E5 ectotrigeminal nucleus 143  
 EA sublenticular extended amygdala 47-48  
 EAC sublenticular extended amygdala, central part 39-46  
 EAM sublenticular extended amygdala, medial part 43-46  
 ec external capsule 14-66  
 ECIC external cortex of the inferior colliculus 91-110  
 Ect ectorhinal cortex 58-111  
 ECu external cuneate nucleus 135-151  
 EF epifascicular nucleus 132-134  
 EGP external globus pallidus 35-59  
 ELm epilemmiscal nucleus 82  
 eml external medullary lamina 60-65  
 EPI external plexiform layer of the olfactory bulb 1-5  
 EPIA external plexiform layer of the accessory olfactory bulb 3-4

EpP epipeduncular nucleus 78-80  
 ERS epirubrospinal nucleus 98-99  
 ESO episupraoptic nucleus 39-45  
 Eth ethmoid thalamic nucleus 70-73  
 EVe nucleus of origin of efferents of the vestibular nerve 116-125  
 EW Edinger-Westphal nucleus 73, 76-90

## F

F nucleus of the fields of Forel 67-71  
 f fornix 34-72  
 FC fasciola cinereum 57-75, 77  
 fi fimbria of the hippocampus 32-68  
 Fl flocculus 107-125  
 fmi forceps minor of the corpus callosum 8-13  
 fmj forceps major of the corpus callosum 77-101  
 fr fasciculus retroflexus 58-80  
 Fr3 frontal cortex, area 3 7-12  
 FrA frontal assocn cortex 4-5  
 Fu bed nucleus of stria terminalis, fusiform part 32-36  
 FVe F cell group of the vestibular complex 137-140

## G

g7 genu of the facial nerve 118-124  
 gcc genu of the corpus callosum 14-20  
 Ge5 gelatinous layer of the caudal spinal trigeminal nucleus 158-161  
 Gem gemini hypothalamic nucleus 66-70  
 GI granular insular cortex 12-57  
 Gi gigantocellular reticular nucleus 119-148  
 GiA gigantocellular reticular nucleus, alpha part 119-133  
 GiV gigantocellular reticular nucleus, ventral part 134-143  
 Gl glomerular layer of the olfactory bulb 1-5  
 GLA glomerular layer of the accessory olfactory bulb 4-5  
 Gr gracile nucleus 144-161  
 gr gracile fasciculus 153-162  
 GrA granule cell layer of the accessory olfactory bulb 2-5  
 GrC granule cell layer of cochlear nuclei 109-128  
 GrCb granule cell layer of the cerebellum 120, 122, 125, 131, 134  
 GrDG granular layer of the dentate gyrus 47-89

GrO granular cell layer of the olfactory bulb 1-6

## H

hbc habenular commissure 67-72  
 HDB nucleus of the horizontal limb of the diagonal band 24-46  
 hif hippocampal fissure 54-85

## I

I intercalated nuclei of the amygdala 39-40, 42-48, 52-55, 57-60  
 I8 interstitial nucleus of the vestibulocochlear nerve 118-123  
 ia internal arcuate fibers 151-156, 160-161  
 IAD interanterodorsal thalamic nucleus 44-48  
 IAM interanteromedial thalamic nucleus 47-51  
 IB interstitial basal nucleus of the medulla 155-161  
 IC inferior colliculus 111  
 ic internal capsule 33-71  
 icf intercrural fissure 132-140  
 ICj islands of Calleja 10, 12-32  
 ICjM islands of Calleja, major island 15-16, 18-24  
 icp inferior cerebellar peduncle (restiform body) 116-143  
 icpd inferior cerebellar peduncle decussation 122-124  
 ID intradecussational nucleus of the decussation of the superior cerebellar peduncle 89-92  
 IEn intermediate endopiriform nucleus 8-39  
 IF interfascicular nucleus 75-87  
 IG indusium griseum 14-76  
 IGL intergeniculate leaf 65-75  
 IGP internal globus pallidus (intrapeduncular nucleus) 49-56  
 II intermediate interstitial nucleus of the medial longitudinal fasciculus 115-116  
 IL infralimbic cortex 9-13  
 ILL intermediate nucleus of the lateral lemniscus 99-105  
 IM intercalated amygdaloid nucleus, main part 49-51  
 IMA intramedullary thalamic area 65-78  
 IMD intermediodorsal thalamic nucleus 53- 64  
 IMG amygdaloid intramedullary gray 54-56  
 iml internal medullary lamina 65

imvc intermedioventral thalamic commissure 60  
 In intercalated nucleus of the medulla 140-141  
 InC interstitial nucleus of Cajal 75-90  
 InCSh interstitial nucleus of Cajal, shell region 75-84  
 InfS infundibular stem 62-65  
 InG intermediate gray layer of the superior colliculus 77-99  
 InM intermedius nucleus of the medulla 142-146  
 IntA interposed cerebellar nucleus, anterior part 122-129  
 IntDL interposed cerebellar nucleus, dorsolateral hump 123-132  
 IntDM interposed cerebellar nucleus, dorsomedial crest 124-127, 130-131  
 IntP interposed cerebellar nucleus, posterior part 128-133  
 IntPPC interposed cerebellar nucleus, posterior parvicellular part 128-130  
 InWh intermediate white layer of the superior colliculus 76-99  
 IOA inferior olive, subnucleus A of medial nucleus 148-154  
 IOB inferior olive, subnucleus B of medial nucleus 146-154  
 IOBe inferior olive, beta subnucleus 146-153  
 IOC inferior olive, subnucleus C of medial nucleus 146-154  
 IOD inferior olive, dorsal nucleus 134-149  
 IODM inferior olive, dorsomedial cell group 142-143  
 IOK inferior olive, cap of Kooy of the medial nucleus 147-151  
 IOM inferior olive, medial nucleus 134-145, 155-156  
 IOPr inferior olive, principal nucleus 133-147  
 IOVL inferior olive, ventrolateral protrusion 144-146  
 IP interpeduncular nucleus 79  
 IPA interpeduncular nucleus, apical subnucleus 89-92  
 IPAC interstitial nucleus of the posterior limb of the anterior commissure 28-34, 44-45  
 IPACL interstitial nucleus of the posterior limb of the anterior commissure, lateral part 35-43  
 IPACM interstitial nucleus of the posterior limb of the anterior commissure, medial part 35-43  
 IPC interpeduncular nucleus, caudal subnucleus 80-93

IPDL interpeduncular nucleus, dorsolateral subnucleus 85-90  
 IPDM interpeduncular nucleus, dorsomedial subnucleus 84-87  
 IPF interpeduncular fossa 75-80  
 IPI interpeduncular nucleus, intermediate subnucleus 87-91  
 IPL interpeduncular nucleus, lateral subnucleus 80-93  
 IPI internal plexiform layer of the olfactory bulb 1-5  
 IPR interpeduncular nucleus, rostral subnucleus 80-88  
 IRt intermediate reticular nucleus 117-119, 133-161  
 IRtA intermediate reticular nucleus, alpha part 120-132  
 IS inferior salivatory nucleus 128-135  
 IVF interventricular foramen 39-42

## J

JPLH juxtaparaventricular part of lateral hypothalamus 45-48  
 JxO juxtaolivary nucleus 134-141

## K

KF Killiker-Fuse nucleus 105-110

## L

LA lateroanterior hypothalamic nucleus 40-45  
 La lat amygdaloid nucleus 68  
 LAcbSh lateral accumbens shell 15-26  
 LaDL lateral amygdaloid nucleus, dorsolateral part 50-67  
 Lat lateral (dentate) cerebellar nucleus 122-130  
 LatPC lateral cerebellar nucleus, parvicellular part 124-128  
 LaVL lateral amygdaloid nucleus, ventrolateral part 55-61  
 LaVM lateral amygdaloid nucleus, ventromedial part 55-67  
 LC locus coeruleus 112-119  
 Ld lambdoid septal zone 23-30  
 LDDM laterodorsal thalamic nucleus, dorsomedial part 50-59  
 LDTg laterodorsal tegmental nucleus 101-112

LDTgV	laterodorsal tegmental nucleus, ventral part	104-108
LDVL	laterodorsal thalamic nucleus, ventrolateral part	48-61
LEnt	lateral entorhinal cortex	59-84, 104-107
lfp	longitudinal fasciculus of the pons	94-107
LHb	lateral habenular nucleus	52-56, 69
LHbL	lateral habenular nucleus, lateral part	57-68
LHbM	lateral habenular nucleus, medial part	57-68
Li	linear nucleus of the medulla	135-143
ll	lateral lemniscus	92-108
LM	lateral mammillary nucleus	68-73
LMol	lacunosum moleculare layer of the hippocampus	54-89
LO	lateral orbital cortex	5-13
lo	lateral olfactory tract	3-44
LOT	nucleus of the lateral olfactory tract	37
LOT1	nucleus of the lateral olfactory tract, layer 1	38-45
LPAG	lateral periaqueductal gray	77-105
LPB	lateral parabrachial nucleus	105, 111-114
LPBC	lateral parabrachial nucleus, central part	106-111
LPBCr	lateral parabrachial nucleus, crescent part	107-110
LPBD	lateral parabrachial nucleus, dorsal part	107-110
LPBE	lateral parabrachial nucleus, external part	106-111
LPBI	lateral parabrachial nucleus, internal part	107-113
LPBM	lateral parabrachial nucleus, medial part	110
LPBS	lateral parabrachial nucleus, superior part	105-106
LPBV	lateral parabrachial nucleus, ventral part	107-113
LPGi	lateral paragigantocellular nucleus	119-120, 132-142
LPGiA	lateral paragigantocellular nucleus. alpha part	121-131
LPGiE	lateral paragigantocellular nucleus. external part	121-136
LPLC	lateral posterior thalamic nucleus, laterocaudal part	71-78
LPLR	lateral posterior thalamic nucleus, laterorostral part	62-71
LPMC	lateral posterior thalamic nucleus, mediocaudal part	70-81
LPMR	lateral posterior thalamic nucleus, mediorostral part	59-72
LPO	lateral preoptic area	28-42
LPtA	lateral parietal association cortex	59-67
LR4V	lateral recess of the 4th ventricle	113-139
LRt	lateral reticular nucleus	142-157
LRtPC	lateral reticular nucleus, parvicellular part	148-157
LRTS5	lateral reticular nucleus, subtrigeminal part	143-150
LSD	lateral septal nucleus, dorsal part	16-41
LSI	lateral septal nucleus, intermediate part	14-37
LSO	lateral superior olive	112-122
LSS	lateral stripe of the striatum	14-38
LSV	lateral septal nucleus, ventral part	16-36
LT	lateral terminal nucleus of the accessory optic tract	71-78
LTer	lemnina terminalis	35-37
Lth	lithoid nucleus	71-76
LV	lateral ventricle	13-97
LVe	lateral vestibular nucleus	122-127
LVPO	lateroventral periolivary nucleus	109-119
<b>M</b>		
M1	primary motor cortex	7-59
M2	secondary motor cortex	6-60
m5	motor root of the trigeminal nerve	88-115
MA3	medial accessory oculomotor nucleus	75-83
mcer	middle cerebral artery	23, 25-27, 29, 32, 35-38
mch	medial corticohypothalamic tract	38, 40-41
MCLH	magnocellular nucleus of the lateral hypothalamus	54-59
mcp	middle cerebellar peduncle	92-118
MCPC	magnocellular nucleus of the posterior commissure	71-78
MCPO	magnocellular preoptic nucleus	32-46
MD	mediodorsal thalamic nucleus	47-50
MDC	mediodorsal thalamic nucleus, central part	55-61
MdD	medullary reticular nucleus, dorsal part	149-161
MDL	mediodorsal thalamic nucleus, lateral part	50-66
MDM	mediodorsal thalamic nucleus, medial part	51-66
MdV	medullary reticular nucleus, ventral part	149-161
ME	median eminence	48
Me5	mesencephalic trigeminal nucleus	86-107, 109-116
me5	mesencephalic trigeminal tract	86-115
MeAD	medial amygdaloid nucleus, ant dorsal	42-55
MeAV	medial amygdaloid nucleus, anteroventral part	47-54
Med	medial (fastigial) cerebellar nucleus	124-133
MedCM	medial cerebellar nucleus, caudomedial part	133
MedDL	medial cerebellar nucleus, dorsolateral protuberance	127-132
MedL	medial cerebellar nucleus, lateral part	127-131
MEE	medial eminence, external layer	49-61
MEI	medial eminence, internal layer	49-61
MEnt	medial entorhinal cortex	85-105
MEntV	medial entorhinal cortex, ventral part	82-83
MePD	medial amygdaloid nucleus, posterodorsal part	53-63
MePV	medial amygdaloid nucleus, posteroventral part	55-63
mfb	medial forebrain bundle	12-31, 40-70
mfba	medial forebrain bundle, 'a' component	32-39
mfbB	medial forebrain bundle, 'b' component	32-39
MGD	medial geniculate nucleus, dorsal part	73-87
MGM	medial geniculate nucleus, medial part	74-87
MGV	medial geniculate nucleus, ventral part	73-88
MHb	medial habenular nucleus	48-70
Mi	mitral cell layer of the olfactory bulb	1-5
MiA	mitral cell layer of the accessory olfactory bulb	3-4
MiTg	microcellular tegmental nucleus	90-101
ML	medial mammillary nucleus, lateral part	68-78
ml	medial lemniscus	55-153
mld	medial lemniscus decussation	148-155
mlf	medial longitudinal fasciculus	78-161
MM	medial mammillary nucleus, medial part	68-73
MnA	median accessory nucleus of the medulla	155-161
MnM	medial mammillary nucleus, median part	68-70
MnPO	median preoptic nucleus	29-35
MnR	median raphe nucleus	93-106
MO	medial orbital cortex	5-8
MoCb	molecular layer of the cerebellum	120, 122, 125, 131, 134
MoDG	molecular layer of the dentate gyrus	46-90
MoS	molecular layer of the subiculum	90-92
mp	mammillary peduncle	70-83
MPA	medial preoptic area	29-44
MPB	medial parabrachial nucleus	105-116
MPBE	medial parabrachial nucleus external part	108-111
MPL	medial paralemniscial nucleus	99-105
MPO	medial preoptic nucleus	43-44
MPOC	medial preoptic nucleus, central part	37-39
MPOL	medial preoptic nucleus, lateral part	34-40
MPOM	medial preoptic nucleus, medial part	35-42
MPT	medial pretectal nucleus	70-77
MPtA	medial parietal association cortex	60-67
MRe	mammillary recess of the 3rd ventricle	66-70
MS	medial septal nucleus	20-33
MSO	medial superior olive	109-120
MT	medial terminal nucleus of the accessory optic tract	74-79
mt	mammillothalamic tract	47-68
mtg	mammillotegmental tract	69-83
MTu	medial tuberal nucleus	55-62
MVe	medial vestibular nucleus	139-142
MVeMC	medial vestibular nucleus, magnocellular part	115-138
MVePC	medial vestibular nucleus, parvicellular part	117-138
MVPO	medioventral periolivary nucleus	105-121
Mx	matrix region of the medulla	129-158
MZMG	marginal zone of the medial geniculate	73-88
<b>N</b>		
ns	nigrostriatal bundle	47-72
Nv	navicular nucleus of the basal forebrain	10-17

## O

Obex obex 153  
 oc olivocerebellar tract 129-136  
 ocb olivocochlear bundle 115-121  
 och optic chiasm 29-40  
 Op optic nerve layer of the superior colliculus 77-98  
 OPC oval paracentral thalamic nucleus 60-66  
 OPT olivary pretectal nucleus 70-78  
 opt optic tract 41-79  
 Or oriens layer of the hippocampus 47-89  
 OT nucleus of the optic tract 72-81  
 OV olfactory ventricle (olfactory part of lateral ventricle) 1-5

## P

P3V preoptic recess of the 3rd ventricle 31  
 P5 peritrigeminal zone 107-116  
 P7 perifacial zone 120-131, 133-134  
 Pa4 paratrochlear nucleus 94-98  
 Pa5 paratrigeminal nucleus 141-150  
 Pa6 paraabducens nucleus 117-120  
 PaAP paraventricular hypothalamic nucleus, anterior parvicellular part 40-44  
 PaC paracommissural nucleus of the posterior commissure 76-80  
 PaDC paraventricular hypothalamic nucleus, dorsal cap 47-49  
 PAG periaqueductal gray 74-76  
 PaLM paraventricular hypothalamic nucleus, lateral magnocellular part 47-49  
 PaMM paraventricular hypothalamic nucleus, medial magnocellular part 45-46  
 PaMP paraventricular hypothalamic nucleus, medial parvicellular part 45-50  
 PaPo paraventricular hypothalamic nucleus, posterior part 50-52  
 PaR pararubral nucleus 79-88  
 PaS parasubiculum 87-110  
 PaV paraventricular hypothalamic nucleus, ventral part 45-49  
 PaXi paraxiphooid nucleus of thalamus 46-56  
 PBG parabigeminal nucleus 91-99  
 PBP parabrachial pigmented nucleus of the VTA 71-87  
 PC paracentral thalamic nucleus 44-66  
 pc posterior commissure 71-79

PC5 parvicellular motor trigeminal nucleus 108-112  
 pcer posterior cerebral artery 85-87  
 PCGS paracochlear glial substance 111-118  
 PCom nucleus of the posterior commissure 73-76  
 PCRt parvicellular reticular nucleus 115-116, 128-148  
 PCRtA parvicellular reticular nucleus, alpha part 117-127  
 pcuf preculminate fissure 109-125  
 PDPO posterodorsal preoptic nucleus 38  
 PDR posterodorsal raphe nucleus 93-101  
 PDTg posterodorsal tegmental nucleus 111-115  
 Pe periventricular hypothalamic nucleus 35-62  
 PeAP periventricular hypothalamic nucleus, anterior parvicellular part 38-39  
 PeF perforinical nucleus 55-63  
 PeFLH perifornical part of lateral hypothalamus 51-65  
 PF parafascicular thalamic nucleus 64-70  
 PFI paraflocculus 113-137  
 pfs parafloccular sulcus 119-121, 123-131, 133-135  
 PH posterior hypothalamic nucleus 61-69  
 PHA posterior hypothalamic area 70-71  
 PHD posterior hypothalamic area, dorsal part 57-64  
 Pi pineal gland 94-106  
 PIF parainterfascicular nucleus of the VTA 79-88  
 PIL posterior intralaminar thalamic nucleus 73-84  
 Pir piriform cortex 7-74  
 PiSt pineal stalk 92-93  
 Pk Purkinje cell layer of the cerebellum 120, 122, 125, 131, 134  
 PL paralemniscal nucleus 97-99  
 PLCo posterolateral cortical amygdaloid nucleus 51-53, 68-74  
 PLCo1 posterolateral cortical amygdaloid nucleus, layer 1 54-67  
 PLd paralambdoid septal nucleus 22-29  
 plf posterolateral fissure 115-121, 123-124, 129, 132-148  
 PLH peduncular part of lateral hypothalamus 43-71  
 PLi posterior limitans thalamic nucleus 70-81  
 PIPAG pliolglial part of periaqueductal gray 77-80  
 PLV perilemniscal nucleus, ventral part 103-106  
 PM paramedian lobule 132-153

pm principal mammillary tract 69  
 PMCo posteromedial cortical amygdaloid nucleus 56-80  
 PMD premammillary nucleus, dorsal part 66-67  
 PMn paramedian reticular nucleus 139-144  
 PMnR paramedian raphe nucleus 92-106  
 pms paramedian sulcus 136-142, 144-146, 148  
 PMV premammillary nucleus, ventral part 63-66  
 PN paranigral nucleus of the VTA 76-87  
 Pn pontine nuclei 89-105  
 PnC pontine reticular nucleus, caudal part 108-118  
 PnO pontine reticular nucleus, oral part 93-107  
 PnR pontine raphe nucleus 107-108  
 PnV pontine reticular nucleus, ventral part 113-118  
 Po posterior thalamic nuclear group 54-81  
 PoDG polymorph layer of the dentate gyrus 51-87  
 POH periolivary horn 112-116  
 PoMn posteromedian thalamic nucleus 65-66  
 Post postsubiculum 83-103  
 PoT posterior thalamic nuclear group, triangular part 74-84  
 PP peripeduncular nucleus 75-82  
 ppf prepyramidal fissure 137-150  
 PPT posterior pretectal nucleus 75-79  
 PPTg pedunculopontine tegmental nucleus 89-106  
 PPy parapyramidal nucleus 122-132  
 PR prerubral field 65-75  
 Pr prepositus nucleus 119-139  
 Pr5DM principal sensory trigeminal nucleus, dorsomedial part 111-119  
 Pr5VL principal sensory trigeminal nucleus, ventrolateral part 107-120  
 PrBo pre-Botzinger complex 138-140  
 PrC precommissural nucleus 67-72  
 PrCnF precuneiform area 91-100  
 prf primary fissure 111-131  
 PRh perirhinal cortex 58-111  
 PrL prelimbic cortex 6-13  
 PrS presubiculum 87-95  
 PS parastrial nucleus 32-37  
 psf posterior superior fissure 115-135, 140-143  
 PSol parasolitary nucleus 142-146  
 PSTh parasubthalamic nucleus 64-66  
 PT paratenial thalamic nucleus 41-51  
 PTe paraterete nucleus 51-59

PtPC parietal cortex, posterior area, caudal part 81-84  
 PtPD parietal cortex, posterior area, dorsal part 65-80  
 PtPR parietal cortex, posterior area, rostral part 68-80  
 PV paraventricular thalamic nucleus 51-57  
 PVA paraventricular thalamic nucleus, anterior part 40-50  
 PVG periventricular gray 68-73  
 PVP paraventricular thalamic nucleus, posterior part 58-67  
 Py pyramidal cell layer of the hippocampus 48-89  
 py pyramidal tract 108-157  
 pyd pyramidal decussation 155-161

## R

Rad radiatum layer of the hippocampus 49-89  
 RAmb retroambiguus nucleus 152-160  
 RAPir rostral amygdalopiriform area 57-63  
 Rbd rhabdoid nucleus 91-103  
 RCh retrochiasmatic area 42-47  
 RChL retrochiasmatic area, lateral part 45-54  
 Re reuniens thalamic nucleus 42-62  
 ReIC recess of the inferior colliculus 104-108  
 REth retroethmoid nucleus 72-77  
 rf rhinal fissure 4-111  
 Rh rhomboid thalamic nucleus 48-60  
 RI rostral interstitial nucleus of medial longitudinal fasciculus 69-72  
 ri rhinal incisure 4-9  
 RIP raphe interpositus nucleus 113-119  
 RL retrolemniscal nucleus 105, 107  
 RLi rostral linear nucleus of the raphe 74-84, 95  
 RMC red nucleus, magnocellular part 78-88  
 RMg raphe magnus nucleus 113-134  
 Ro nucleus of Roller 135-150  
 ROb raphe obscurus nucleus 130-152  
 RPa raphe pallidus nucleus 114-152  
 RPC red nucleus, parvicellular part 76-86  
 RPF retroparafascicular nucleus 72-74  
 RR retrorubral nucleus 93-97  
 RRe retrouniens area 63-66  
 RRF retrorubral field 86-93  
 rs rubrospinal tract 86-161  
 RSD retrosplenial dysgranular cortex 47-111  
 RSG retrosplenial granular cortex 93

RSGa retrosplenial granular cortex, a region 79-104  
 RSGb retrosplenial granular cortex, b region 66-96  
 RSGc retrosplenial granular cortex, c region 47-90  
 Rt reticular thalamic nucleus 42-67  
 RtSt reticulostriatal nucleus 42-52  
 RtTg reticulotegmental nucleus of the pons 98-113  
 RtTgL reticulotegmental nucleus of the pons, lateral part 112-114  
 RtTgP reticulotegmental nucleus of the pons, pericentral part 99-104  
 RVL rostroventrolateral reticular nucleus 133-137  
 RVRG rostral ventral respiratory group 141-151

## S

S1 primary somatosensory cortex 65-71  
 S1BF primary somatosensory cortex, barrel field 36-69  
 S1DZ primary somatosensory cortex, dysgranular zone 13-61  
 S1DZO primary somatosensory cortex, oral dysgranular zone 14-23  
 S1FL primary somatosensory cortex, forelimb region 13-45  
 S1HL primary somatosensory cortex, hindlimb region 30-52  
 S1J primary somatosensory cortex, jaw region 10-23  
 S1Sh primary somatosensory cortex, shoulder region 46-52  
 S1Tr primary somatosensory cortex, trunk region 53-61  
 S1ULp primary somatosensory cortex, upper lip region 14-59  
 S2 secondary somatosensory cortex 23-65  
 s5 sensory root of the trigeminal nerve 88-117  
 Sag sagulum nucleus 102-106  
 Sc scaphoid thalamic nucleus 70-72  
 scc splenium of the corpus callosum 75-76  
 SCh suprachiasmatic nucleus 37-38  
 SChDL suprachiasmatic nucleus, dorsolateral part 40-41  
 SChVM suprachiasmatic nucleus, ventromedial part 40-41  
 SCO subcommissural organ 70-75  
 scp superior cerebellar peduncle (brachium conjunctivum) 61-72, 74-82, 87, 96, 98-129  
 scpD superior cerebellar peduncle, descending limb 86-95, 112-115  
 sf secondary fissure 136-155  
 SFi septofimbrial nucleus 32-42  
 SFO subfornical organ 38-48  
 SG supragenulate thalamic nucleus 76-85  
 SGe supragenual nucleus 116-119  
 SHi septohippocampal nucleus 14-35  
 SHy septohypothalamic nucleus 28-37  
 SIB substantia innominata, basal part 24-40  
 Sim simple lobule 111-113, 124-135  
 SimA simple lobule A 114-123  
 SimB simple lobule B 114-123  
 simf simplex fissure 121-130  
 SLu stratum lucidum of the hippocampus 49-82  
 SM nucleus of the stria medullaris 42-43, 45  
 sm stria medullaris of the thalamus 38-69  
 SMT submammillothalamic nucleus 66-68  
 SMV superior medullary velum 112, 114, 116, 122-123, 126, 128  
 SNCD substantia nigra, compact part, dorsal tier 71-88  
 SNCM substantia nigra, compact part, medial tier 81-88  
 SNCV substantia nigra, compacta part, ventral tier 81-88  
 SNL substantia nigra, lateral part 71-87  
 SNR substantia nigra, reticular part 69-89  
 SO supraoptic nucleus 33-48  
 sod supraoptic decussation 38-71  
 Sol nucleus of the solitary tract 125  
 sol solitary tract 128-157  
 SolC nucleus of the solitary tract, commissural part 147-161  
 SolCe nucleus of the solitary tract, central part 143-147  
 SolDL solitary nucleus, dorsolateral part 141-156  
 SolDM nucleus of the solitary tract, dorsomedial part 131-140  
 SolG nucleus of the solitary tract, gelatinous part 144-146  
 SolI nucleus of the solitary tract, interstitial part 141-150  
 SolIM nucleus of the solitary tract, intermediate part 126-151  
 SolL nucleus of the solitary tract, lateral part 130-143

SolM nucleus of the solitary tract, medial part 129-161  
 SolRL nucleus of the solitary tract, rostrolateral part 127-130  
 SolV solitary nucleus, ventral part 129-157  
 SolVL nucleus of the solitary tract, ventrolateral part 135-157  
 SOR supraoptic nucleus, retrochiasmatic part 49-54  
 sp5 spinal trigeminal tract 118-161  
 Sp5C spinal trigeminal nucleus, caudal part 149-161  
 Sp5I spinal trigeminal nucleus, interpolar part 129-151  
 Sp5O spinal trigeminal nucleus, oral part 120-130  
 SPa subparaventricular zone of the hypothalamus 41-50  
 SPF subparafascicular thalamic nucleus 65-68  
 SPFPC subparafascicular thalamic nucleus, parvicellular part 68-76  
 Sph sphenoid nucleus 111-113  
 SPO superior paraolivary nucleus 110-120  
 SPTg subpeduncular tegmental nucleus 96-104  
 SpVe spinal vestibular nucleus 125-142  
 st stria terminalis 37-67  
 STA strial part of the preoptic area 33-35  
 Stg stigmoid hypothalamic nucleus 50-52  
 STh subthalamic nucleus 59-68  
 StHy striohypothalamic nucleus 37-42  
 STI bed nucleus of the stria terminalis, intermediate division 35  
 STIA bed nucleus of the stria terminalis, intraamygdaloid division 52-63  
 STLD bed nucleus of the stria terminalis, lateral division, dorsal part 31-35  
 STLI bed nucleus of the stria terminalis, lateral division, intermediate part 36-38  
 STLJ bed nucleus of the stria terminalis, lateral division, juxtacapsular part 34-36  
 STLP bed nucleus of the stria terminalis, lateral division, posterior part 30-40  
 STLV bed nucleus of the stria terminalis, lateral division, ventral part 30-37  
 STMA bed nucleus of the stria terminalis, medial division, anterior part 26-34  
 STMAL bed nucleus of the stria terminalis, medial division, anterolateral part 34-37  
 STMAM bed nucleus of the stria terminalis, medial division, anteromedial part 34-37

STMP bed nucleus of the stria terminalis, medial division, posterior part 42  
 STMPI bed nucleus of the stria terminalis, medial division, posterointermediate part 38-42  
 STMPL bed nucleus of the stria terminalis, medial division, posterolateral part 38-44  
 STMPM bed nucleus of the stria terminalis, medial division, posteromedial part 38-45  
 STMV bed nucleus of the stria terminalis, medial division, ventral part 30-36  
 STr subiculum, transition area 91-96  
 str superior thalamic radiation 66-73  
 STSL bed nucleus of stria terminalis, supracapsular division, medial part 45-46  
 STSM bed nucleus of stria terminalis, supracapsular division, lateral part 45-46  
 Su3 supraoculomotor periaqueductal gray 83-92  
 Su3C supraoculomotor cap 84-92  
 Su5 supratrigeminal nucleus 106-113  
 Sub submedius thalamic nucleus 49-51, 57-60  
 SubB subbrachial nucleus 83-92  
 SubCA subcoeruleus nucleus, alpha part 109-112  
 SubCD subcoeruleus nucleus, dorsal part 107-116  
 SubCV subcoeruleus nucleus, ventral part 107-116  
 SubD submedius thalamic nucleus, dorsal part 52-56  
 SubG subgeniculate nucleus 67-72  
 SubI subincertal nucleus 56-60  
 SubP subpostrema area 146-152  
 SubV submedius thalamic nucleus, ventral part 52-56  
 SuG superficial gray layer of the superior colliculus 77-98  
 SuM supramammillary nucleus 74  
 sumd supramammillary decussation 69-73  
 SuML supramammillary nucleus, lateral part 67-72  
 SuMM supramammillary nucleus, medial part 68-73  
 SuS superior salivatory nucleus 118-127  
 SuVe superior vestibular nucleus 114-123

## T

Te terete hypothalamic nucleus 58-66  
 TeA temporal associatin cortex 71-106  
 tfp transverse fibers of the pons 88-91, 93-107  
 Tr triangular nucleus 98-105



TS triangular septal nucleus 35-45  
 ts tectospinal tract 85-161  
 tth trigeminothalamic tract 83-117, 120-128  
 Tu olfactory tubercle 10-35  
 TuLH tuberal region of lateral hypothalamus 46-62  
 Tz nucleus of the trapezoid body 107-120  
 tz trapezoid body 105-125  
 tzd decussation of the trapezoid body 118

## U

un uncinate fasciculus of the cerebellum 115-122  
 und uncinate fasciculus decussation 123-128

## V

v vein 92-93, 95, 98, 101-102, 105-107  
 V1 primary visual cortex 70-81  
 V1B primary visual cortex, binocular area 82-111  
 V1M primary visual cortex, monocular area 82-111  
 V2L secondary visual cortex, lateral area 79-111  
 V2ML secondary visual cortex, mediolateral area 68-98  
 V2MM secondary visual cortex, mediomedial area 68-107  
 VA ventral anterior thalamic nucleus 46, 48-52  
 VA/VL region where VA and VL overlap 47

VCA ventral cochlear nucleus, anterior part 109-121  
 VCAGr ventral cochlear nucleus, granule cell layer 115-118, 120  
 VCCap ventral cochlear nucleus, capsular part 122-125  
 VCl ventral part of claustrum 15-49  
 VCP ventral cochlear nucleus, posterior part 120-122, 125-127  
 VCPO ventral cochlear nucleus, posterior part, octopus cell area 123-125  
 VDB nucleus of the vertical limb of the diagonal band 18-29  
 VeCb vestibulocerebellar nucleus 122-126  
 veme vestibulomesencephalic tract 116-122  
 VEn ventral endopiriform nucleus 40-58  
 vert vertebral artery 137, 139-145, 147-161  
 vesp vestibulospinal tract 123-126  
 vhc ventral hippocampal commissure 38-48  
 VIEnt ventral intermediate entorhinal cortex 85-100  
 VL ventrolateral thalamic nucleus 48-59  
 VLG ventral lateral geniculate nucleus 60-63, 65-71, 73-77  
 VLG1 ventral lateral geniculate nucleus, layer 1 64, 72  
 VLH ventrolateral hypothalamic nucleus 39-46  
 vlh ventrolateral hypothalamic tract 47-56  
 VLi ventral linear nucleus of the thalamus 69-74

VLL ventral nucleus of the lat lemniscus 97-108  
 VLPAG ventrolateral periaqueductal gray 88-106  
 VLPO ventrolateral preoptic nucleus 33-38  
 VM ventromedial thalamic nucleus 48-64  
 VMH ventromedial hypothalamic nucleus 48-49, 60-61  
 VMHA ventromedial hypothalamic nucleus, anterior part 47  
 VMHC ventromedial hypothalamic nucleus, central part 50-59  
 VMHDM ventromedial hypothalamic nucleus, dorsomedial part 50-59  
 VMHSh ventromedial nucleus of the hypothalamus shell 47-61  
 VMHVL ventromedial hypothalamic nucleus, ventrolateral part 50-59  
 VMPO ventromedial preoptic nucleus 31-36, 107-109  
 VO ventral orbital cortex 5-11  
 VOLT vascular organ of the lamina terminalis 28-33  
 VP ventral pallidum 11-42  
 VPL ventral posterolateral thalamic nucleus 51-70  
 VPM ventral posteromedial thalamic nucleus 54-73  
 VPPC ventral posterior nucleus of the thalamus, parvocellular part 62-69  
 VRe ventral reuniens thalamic nucleus 43-61  
 VS ventral subiculum 71-90

vs ventral spinocerebellar tract 105-161  
 vsd ventral spinocerebellar tract decussation 123  
 VTA ventral tegmental area 89-90  
 VTAR ventral tegmental area, rostral part 72-75  
 VTg ventral tegmental nucleus 100-105  
 vtgd ventral tegmental decussation 78-86  
 VTM ventral tuberomammillary nucleus 64-74  
 VTT ventral tenia tecta 7, 10  
 VTT1 ventral tenia tecta, layer 1 8-9

## X

X nucleus X 125-139  
 Xi xiphoid thalamic nucleus 45-48, 51-53

## Y

Y nucleus Y 124-127

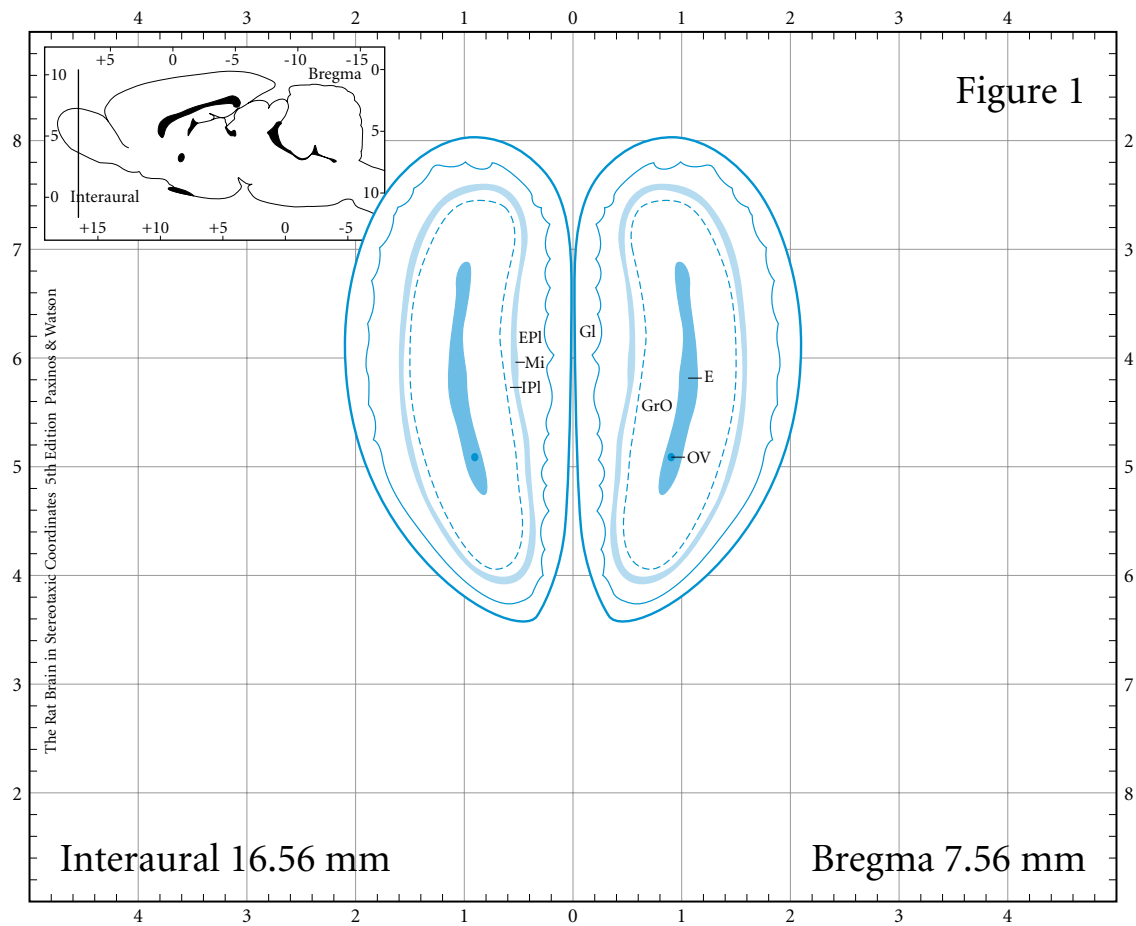
## Z

Z nucleus Z 140-142  
 ZI zona incerta 54-55  
 ZIC zona incerta, caudal part 70-76  
 ZID zona incerta, dorsal part 56-69  
 ZIR zona incerta, rostral part 49-53  
 ZIV zona incerta, ventral part 56-69  
 ZL zona limitans 30-32  
 Zo zona layer of the superior colliculus 77-99

## Figures

*Coronal sections of the brain*    *Figures 1-161*

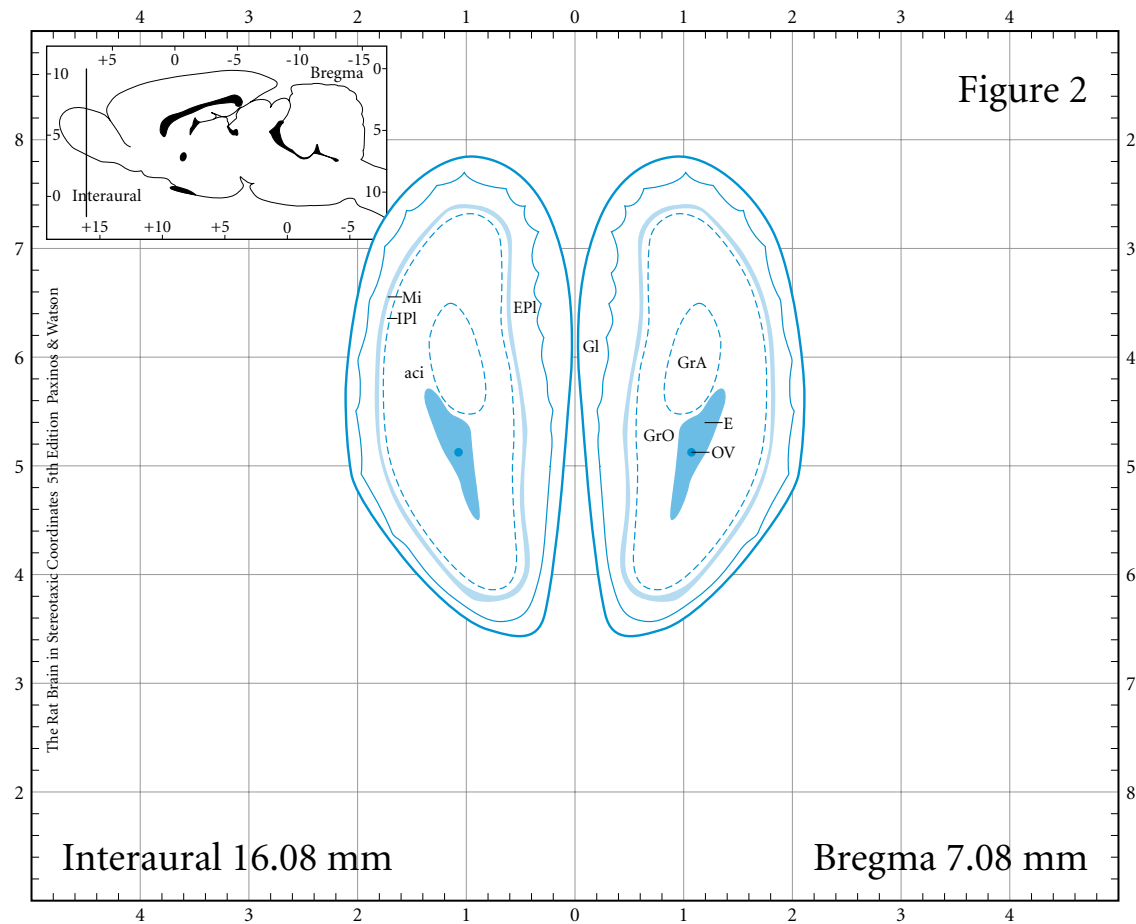
*Transverse sections of the spinal cord*    *Figures 162a, b, c, d, e*

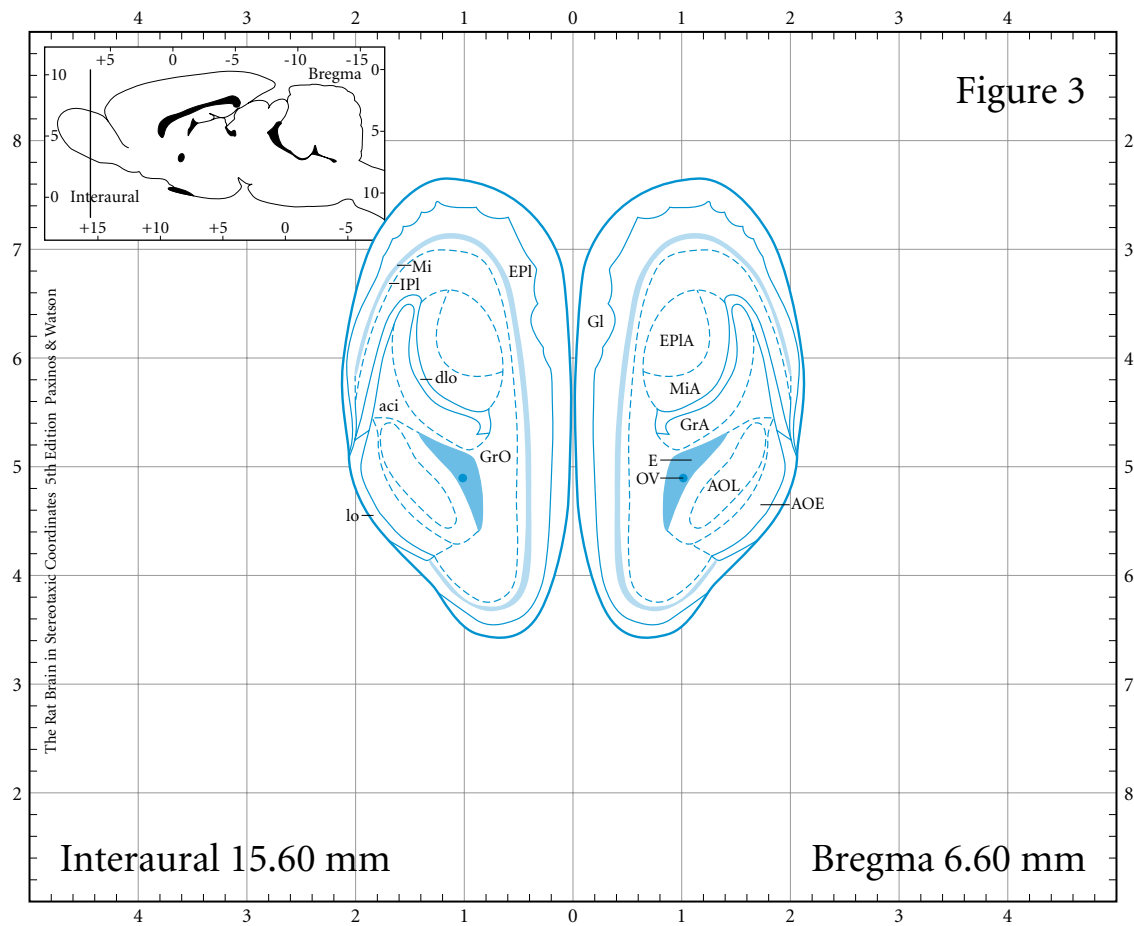


E	ependyma/subepen	IPI	int plexi olf bulb
EPI	ext plex olf bulb	Mi	mitral olf bulb
Gl	glomerular olf b	OV	olfact ventricle
GrO	granular olf bulb		



aci	ac intrabulbar	GrO	granular olf bulb
E	ependyma/subepen	IPl	int plexi olf bulb
EPl	ext plex olf bulb	Mi	mitral olf bulb
Gl	glomerular olf b	OV	olfact ventricle
GrA	gran acc olf bulb		





aci ac intrabulbar  
 AOE ant olfact ext  
 AOL ant olfact lat  
 dlo dorsal lat olf tr  
 E ependyma/subepen  
 EPI ext plex olf bulb  
 EPIA ext plex acc olf b  
 Gl glomerular olf b

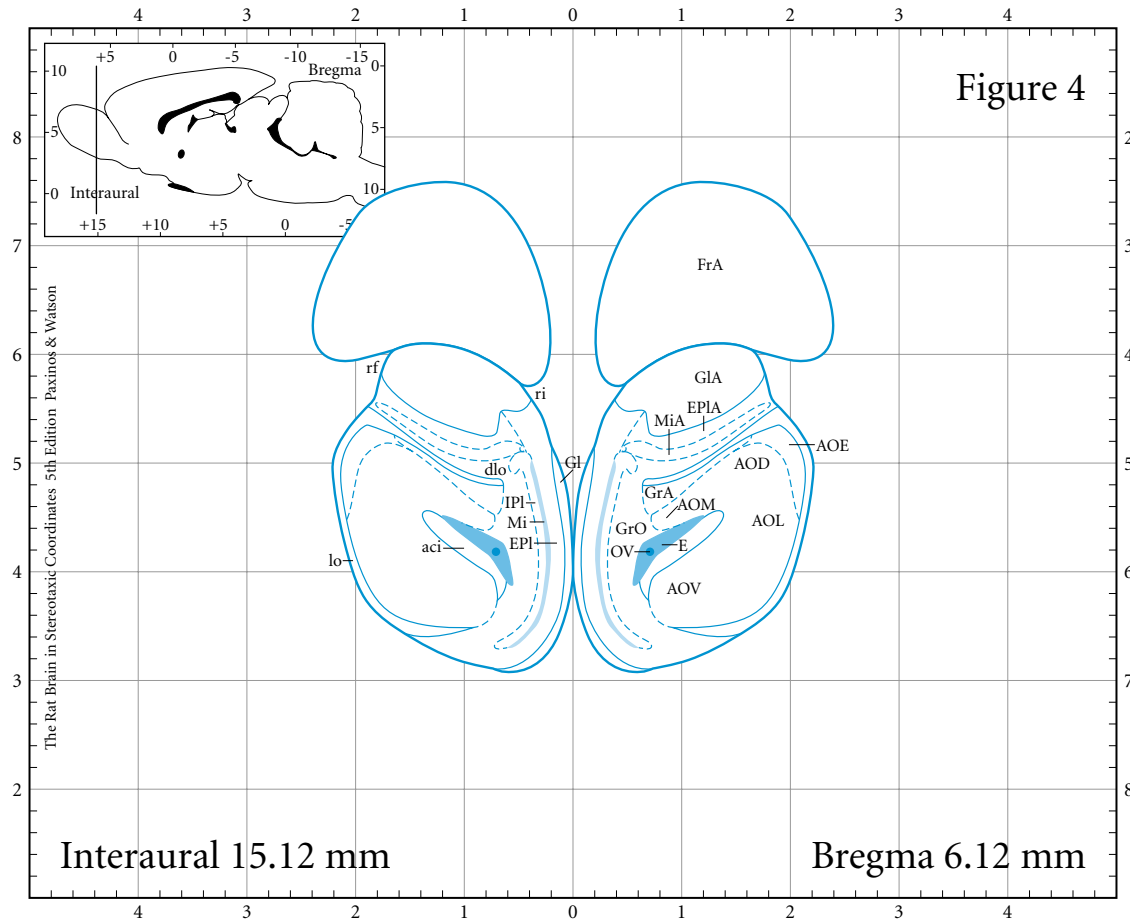
GrA gran acc olf bulb  
 GrO granular olf bulb  
 IPI int plexi olf bulb  
 lo lat olfactory tr  
 Mi mitral olf bulb  
 MiA mitral acc olf bulb  
 OV olfact ventricle

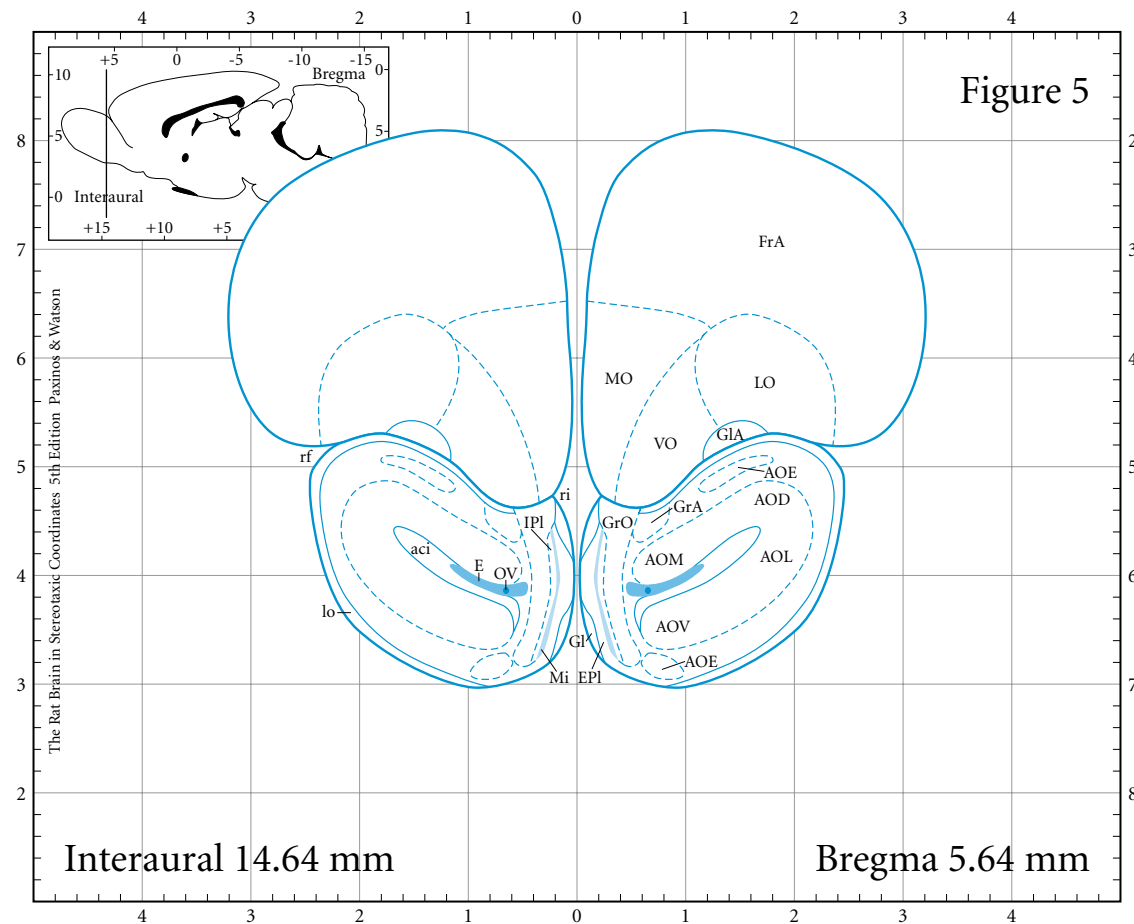
aci ac intrabulbar  
AOD ant olf dorsal  
AOE ant olfact ext  
AOL ant olfact lat  
AOM ant olfact medial  
AOV ant olfact vent

dlo dorsal lat olf tr  
E ependyma/subepen  
EPI ext plex olf bulb  
EPIA ext plex acc olf b  
FrA frontal assocn cx  
Gl glomerular olf b

GIA glom acc olf bulb  
GrO granular olf bulb  
GrA gran acc olf bulb  
IPI int plexi olf bulb  
lo lat olfactory tr  
Mi mitral olf bulb

MiA mitral acc olf bulb  
OV olfact ventricle  
rf rhinal fissure  
ri rhinal incisure





aci ac intrabulbar  
AOD ant olf dorsal  
AOE ant olfact ext  
AOL ant olfact lat  
AOM ant olfact medial  
AOV ant olfact vent

E ependyma/subepen  
EPI ext plex olf bulb  
FrA frontal assocn cx  
Gl glomerular olf b  
GIa glom acc olf bulb  
GrA gran acc olf bulb

GrO granular olf bulb  
IPI int plexi olf bulb  
LO lat orbital cx  
lo lat olfactory tr  
Mi mitral olf bulb  
MO medial orbital cx

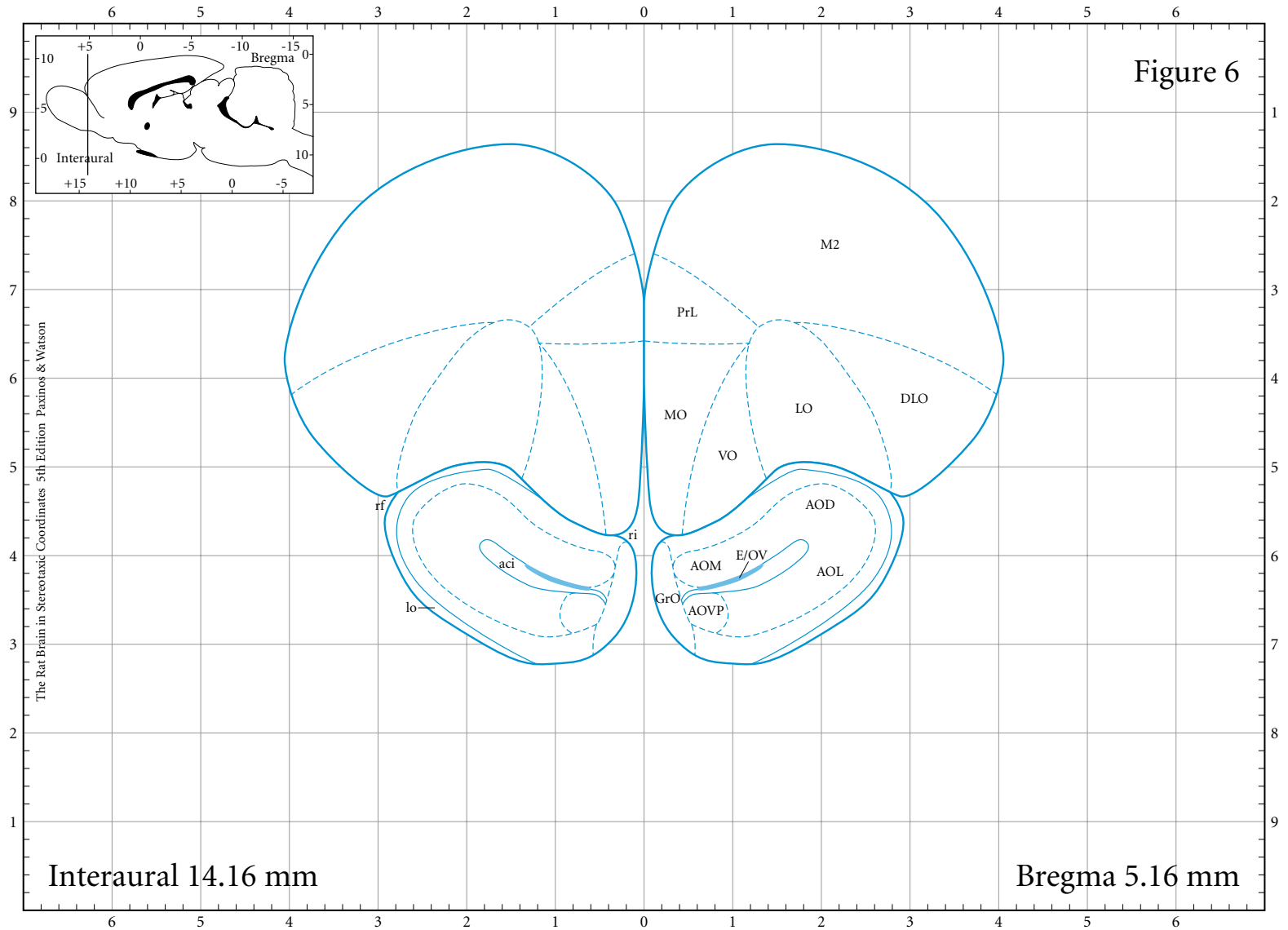
OV olfact ventricle  
rf rhinal fissure  
ri rhinal incisure  
VO ventral orbital cx

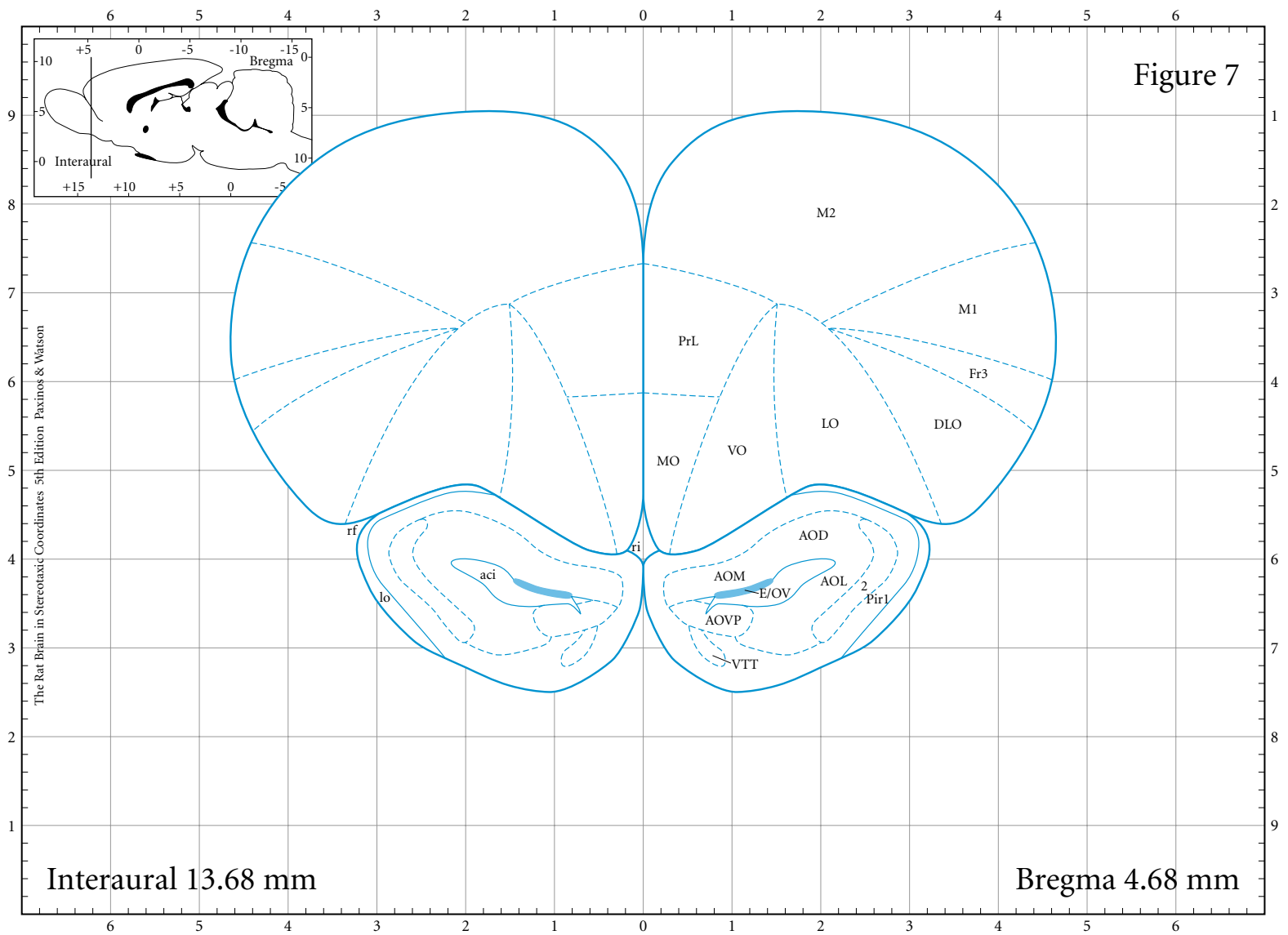
aci ac intrabulbar  
AOD ant olf dorsal  
AOL ant olfact lat  
AOM ant olfact medial

AOVP ant olf ventropost  
DLO dorsolat orbital cx  
E/OV epend/olf ventr  
GrO granular olf bulb

LO lat orbital cx  
lo lat olfactory tr  
M2 2ary motor cx  
MO medial orbital cx

PrL prelimbic cx  
rf rhinal fissure  
ri rhinal incisure  
VO ventral orbital cx





2 layer 2 cortex  
 aci ac intrabulbar  
 AOD ant olf dorsal  
 AOL ant olfact lat  
 AOM ant olfact medial

AOVP ant olf ventropost  
 DLO dorsolat orbital cx  
 E/OV epend/olf ventr  
 Fr3 frontal area 3  
 LO lat orbital cx

lo lat olfactory tr  
 M1 primary motor cx  
 M2 2ary motor cx  
 MO medial orbital cx  
 Pir1 piriform layer 1

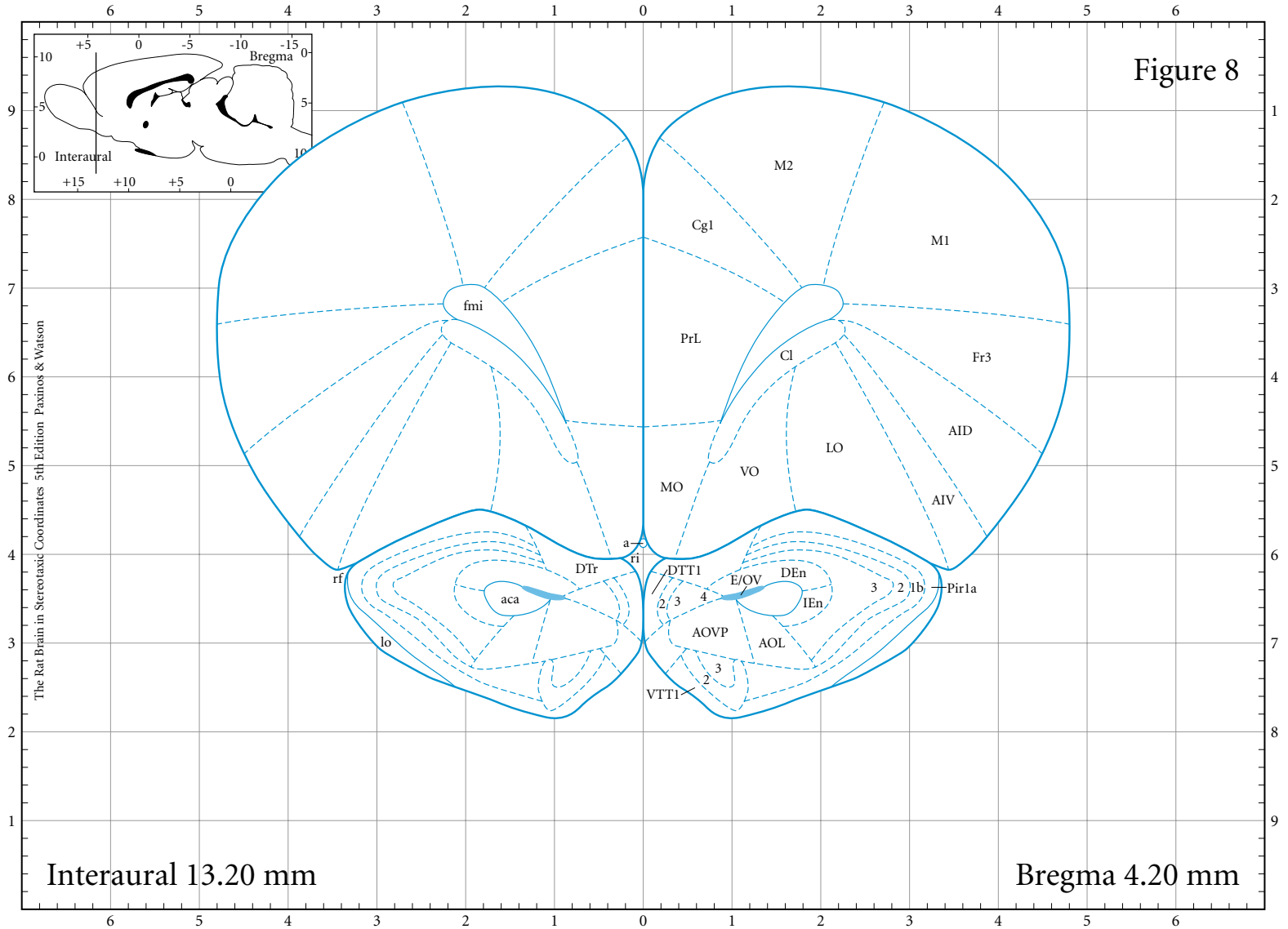
PrL prelimbic cx  
 rf rhinal fissure  
 ri rhinal incisure  
 VO ventral orbital cx  
 VTT ventral tenia tecta

1b layer 1b cortex  
 2 layer 2 cortex  
 3 layer 3 cortex  
 4 layer 4 cortex  
 a artery  
 aca ant comm, ant  
 AID ant insular dorsal  
 AIV ant insular ventral

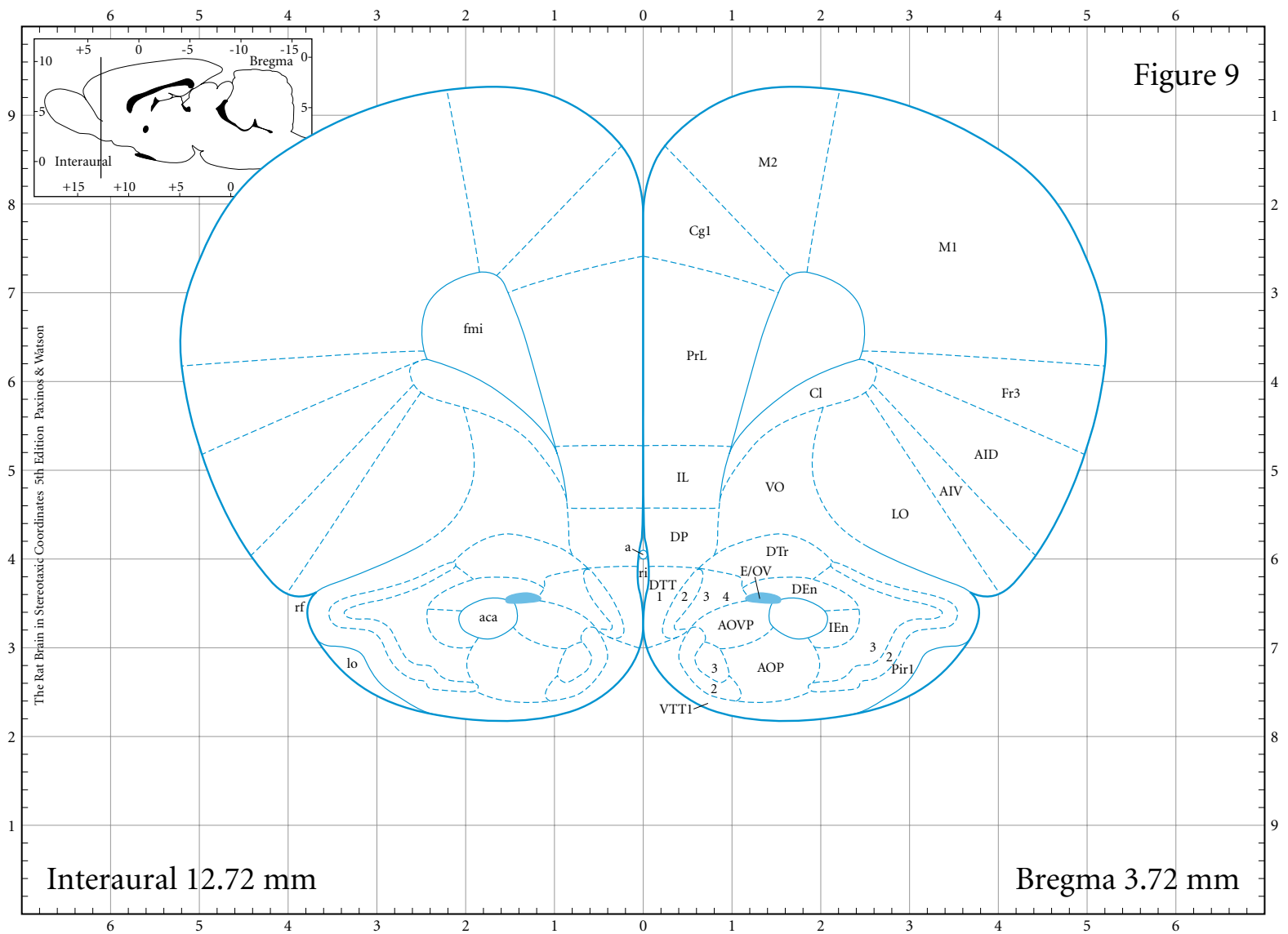
AOL ant olfact lat  
 AOVp ant olf ventropost  
 Cg1 cingulate area 1  
 Cl claustrum  
 DEn dorsal endopirif  
 DTr dorsal trans zone  
 DTT1 dors TT layer 1  
 E/OV epend/olf ventr

fmi forceps minor  
 Fr3 frontal area 3  
 IEn intermed endopir  
 LO lat orbital cx  
 lo lat olfactory tr  
 M1 primary motor cx  
 M2 2ary motor cx  
 MO medial orbital cx

Pir1 piriform layer 1  
 PrL prelimbic cx  
 ri rhinal incisure  
 VO ventral orbital cx  
 VTT1 vent TT layer 1







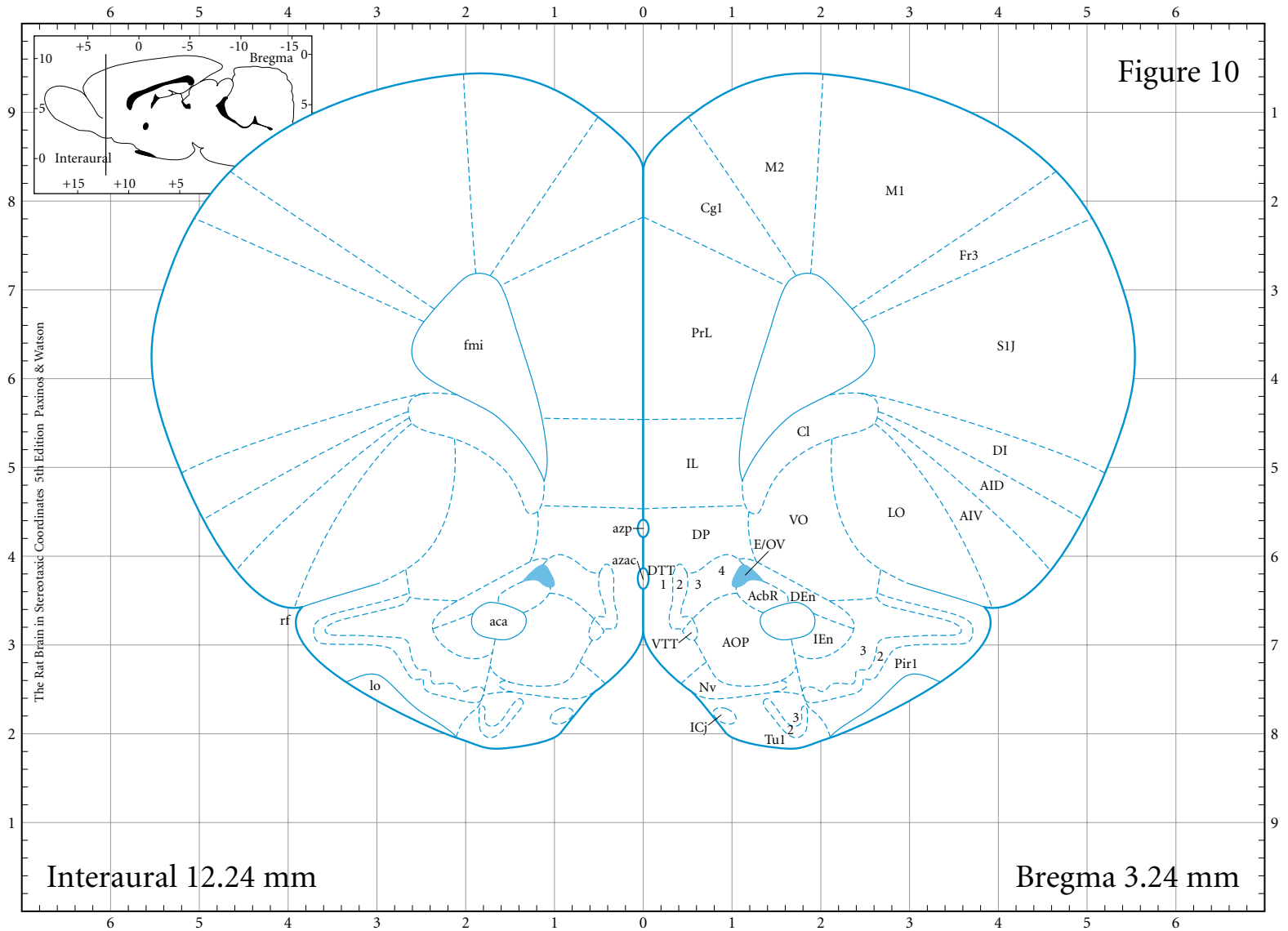
2 layer 2 cortex  
3 layer 3 cortex  
4 layer 4 cortex  
a artery  
aca ant comm, ant  
AID ant insular dorsal  
AIV ant insular ventral  
AOP ant olfact post

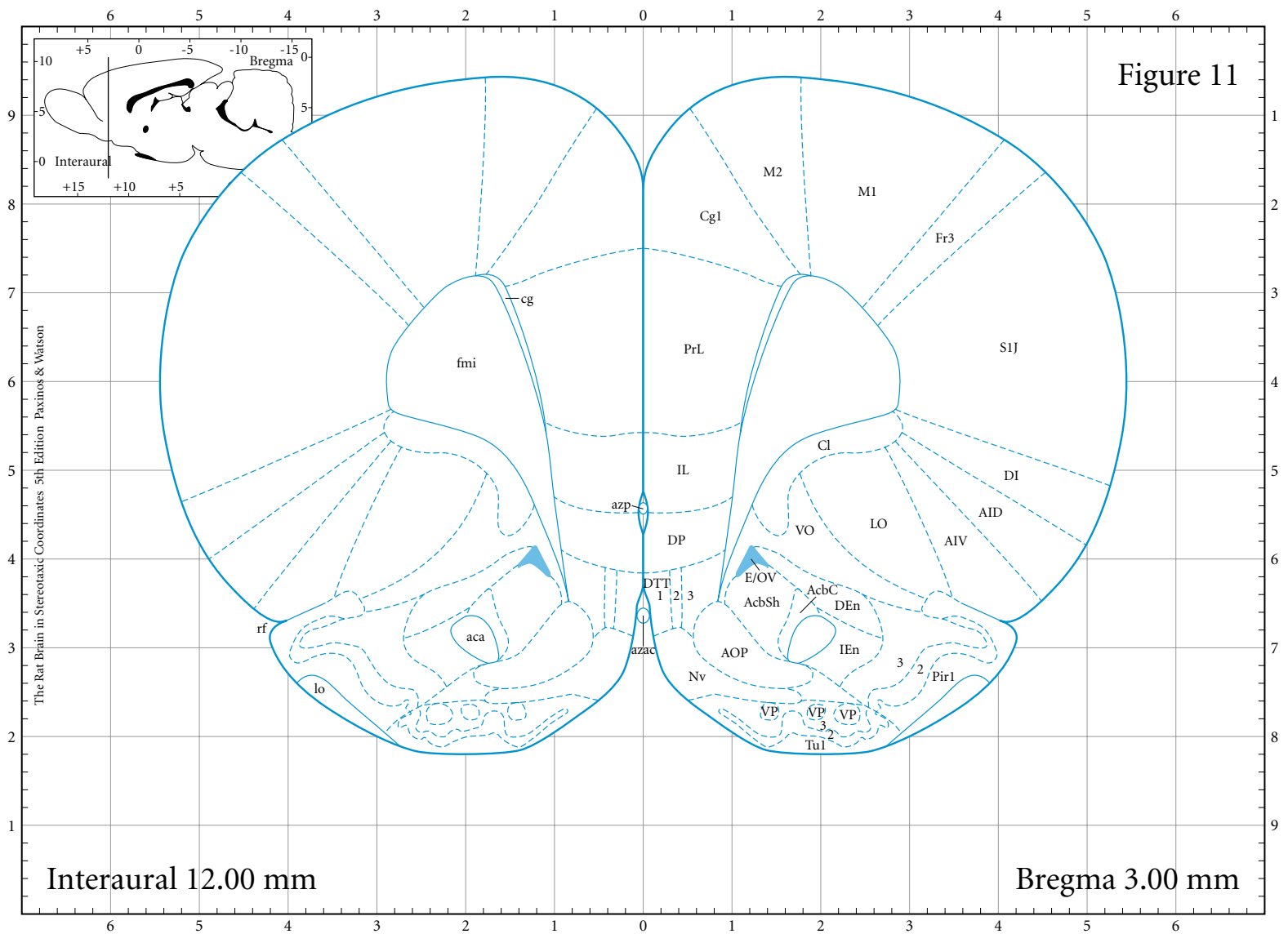
AOVP ant olf ventropost  
Cg1 cingulate area 1  
Cl claustrum  
DEn dorsal endopirif  
DP dorsal pedunc cx  
DTr dorsal trans zone  
DTT dorsal tenia tecta  
E/OV epend/olf ventr

fmi forceps minor  
Fr3 frontal area 3  
IEn intermed endopir  
IL infralimbic cx  
LO lat orbital cx  
lo lat olfactory tr  
M1 primary motor cx  
M2 2ary motor cx

Pir1 piriform layer 1  
PrL prelimbic cx  
rf rhinal fissure  
ri rhinal incisure  
VO ventral orbital cx  
VTT1 vent TT layer 1

Pir1 piriform layer 1  
PrL prelimbic cx  
rf rhinal fissure  
S1J S1 cx, jaw region  
Tu1 olf tub layer 1  
VO ventral orbital cx  
VTT ventral tenia tecta





2 layer 2 cortex  
 3 layer 3 cortex  
 aca ant comm, ant  
 AcbC accumbens core  
 AcbSh accumbens shell  
 AID ant insular dorsal  
 AIV ant insular ventral  
 AOP ant olfact post  
 azac azyg ant cer art

azp azyg perical art  
 cg cingulum  
 Cl claustrum  
 DEn dorsal endopirif  
 DI dysgran insular  
 DP dorsal pedunc cx  
 DTT dorsal tenia tecta  
 E/OV epend/olf ventr  
 fmi forceps minor

Fr3 frontal area 3  
 IEn intermed endopir  
 IL infralimbic cx  
 LO lat orbital cx  
 lo lat olfactory tr  
 M1 primary motor cx  
 M2 2ary motor cx  
 Nv navicular nu  
 Pir1 piriform layer 1

PrL prelimbic cx  
 rf rhinal fissure  
 S1J S1 cx, jaw region  
 Tu1 olf tub layer 1  
 VO ventral orbital cx  
 VP ventral pallidum

2 layer 2 cortex	cg cingulum	fmi forceps minor	M2 2ary motor cx
3 layer 3 cortex	Cg1 cingulate area 1	Fr3 frontal area 3	mfb med forebr bundle
aca ant comm, ant	Cl claustrum	GI granular insular	Nv navicular nu
AcbC accumbens core	CPu caudate putamen	ICj islands of Calleja	Pir1 piriform layer 1
AcbSh accumbens shell	DEn dorsal endopirif	IEn intermed endopir	PrL prelimbic cx
AID ant insular dorsal	DI dysgran insular	IL infralimbic cx	S1J S1 cx, jaw region
AIV ant insular ventral	DP dorsal pedunc cx	LO lat orbital cx	Tu1 olf tub layer 1
azac azyg ant cer art	DTT dorsal tenia tecta	lo lat olfactory tr	VP ventral pallidum
azp azyg perical art	E/OV epend/olf ventr	M1 primary motor cx	

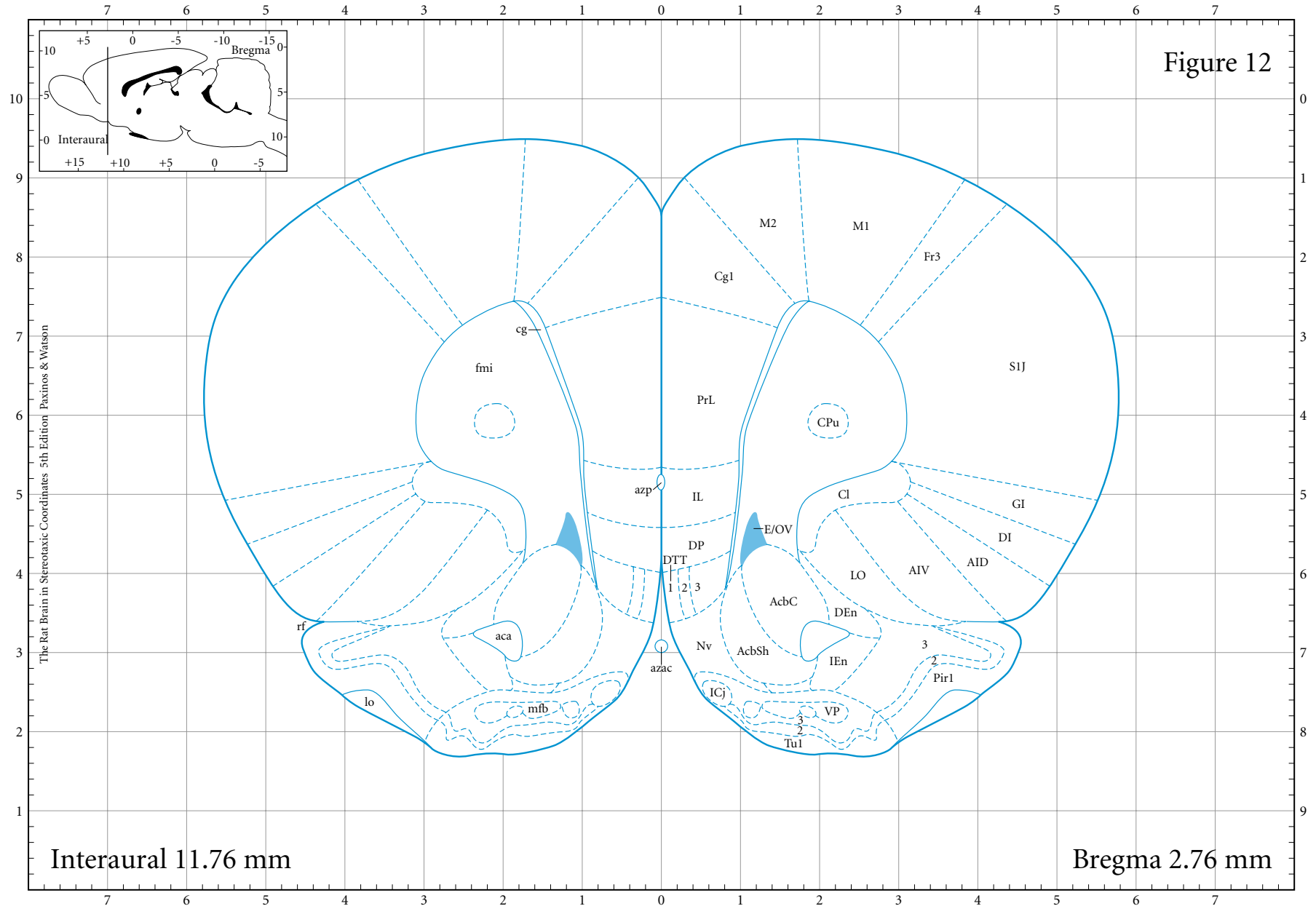
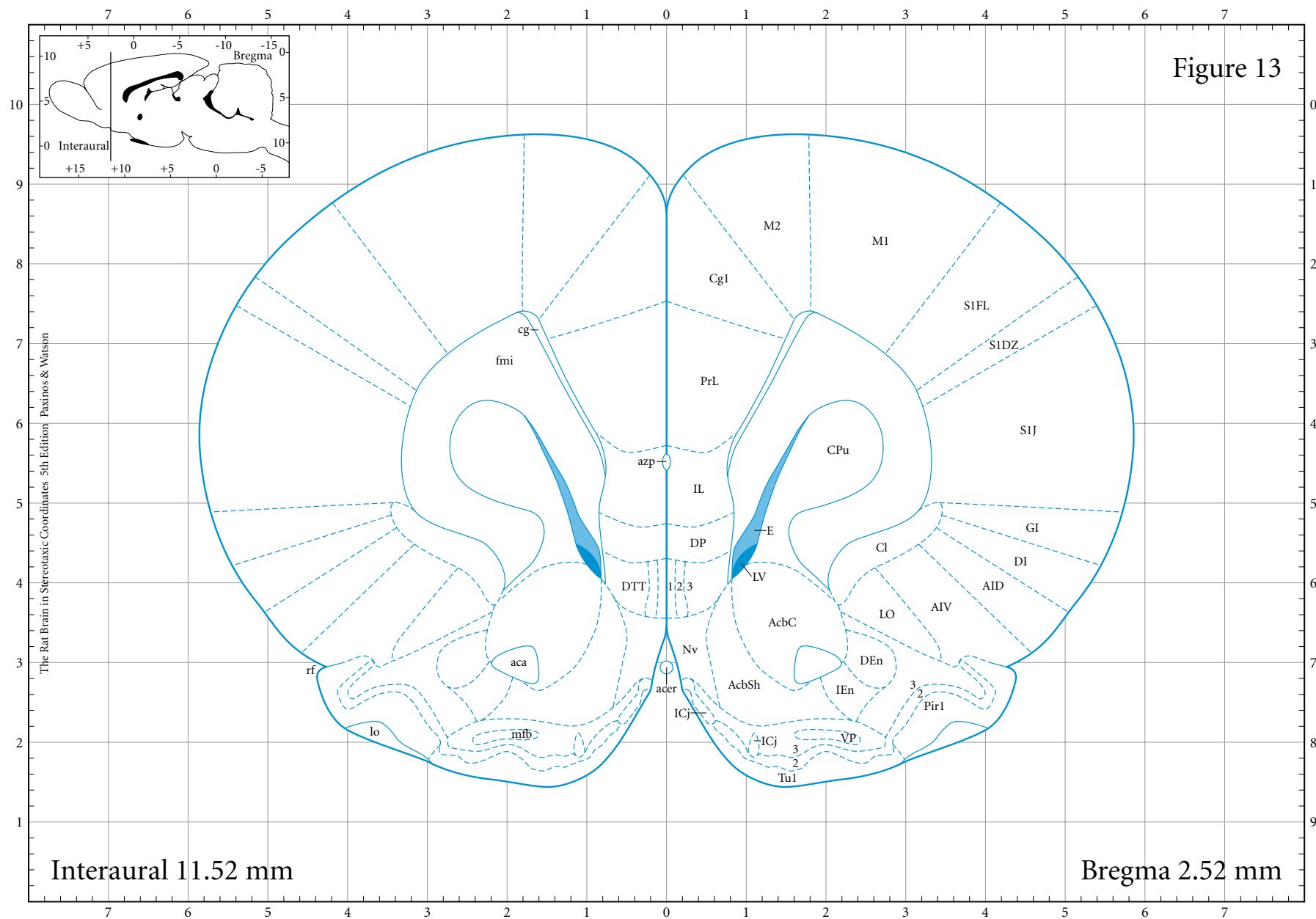


Figure 13



- |                         |                        |                        |                         |
|-------------------------|------------------------|------------------------|-------------------------|
| 2 layer 2 cortex        | Cg1 cingulate area 1   | GI granular insular    | mfb med forebr bundle   |
| 3 layer 3 cortex        | CI claustrum           | ICj islands of Calleja | Nv navicular nu         |
| aca ant comm, ant       | CPu caudate putamen    | IEn intermed endopir   | Pir1 piriform layer 1   |
| AcbC accumbens core     | DEn dorsal endopirif   | IL infralimbic cx      | PrL prelimbic cx        |
| AcbSh accumbens shell   | DI dysgran insular     | LO lat orbital cx      | S1DZ S1 dysgranular zn  |
| AID ant insular dorsal  | DP dorsal pedunc cx    | lo lat olfactory tr    | S1FL S1 forelimb region |
| AIV ant insular ventral | DTT dorsal tenia tecta | LV lat ventricle       | S1J S1 cx, jaw region   |
| azp azyg perical art    | E ependyma/subepen     | M1 primary motor cx    | Tu1 olf tub layer 1     |
| cgl cingulum            | fmi forceps minor      | M2 2ary motor cx       | VP ventral pallidum     |

2 layer 2 cortex  
3 layer 3 cortex  
aca ant comm, ant  
AcbC accumbens core  
AcbSh accumbens shell  
AID ant insular dorsal  
AIV ant insular ventral

azp azyg perical art  
cg cingulum  
Cg1 cingulate area 1  
Cg2 cingulate area 2  
Cl claustrum  
CPu caudate putamen  
DEn dorsal endopirif

DI dysgran insular  
DP dorsal pedunc cx  
DTT dorsal tenia tecta  
E ependyma/subepen  
ec external capsule  
gcc genu of corp call  
GI granular insular

ICj islands of Calleja  
IEn intermed endopir  
IG indusium griseum  
lo lat olfactory tr  
LSI lat septal intermed  
LSS lat stripe of str  
LV lat ventricle

M1 primary motor cx  
M2 2ary motor cx  
mfb med forebr bundle  
Nv navicular nu  
Pir1 piriform layer 1  
rf rhinal fissure  
S1DZ S1 dysgranular zn

S1DZO S1 oral dysgran zn  
S1FL S1 forelimb region  
S1J S1 cx, jaw region  
S1ULp S1 upper lip region  
SHi septohipp nu  
Tu1 olf tub layer 1  
VP ventral pallidum

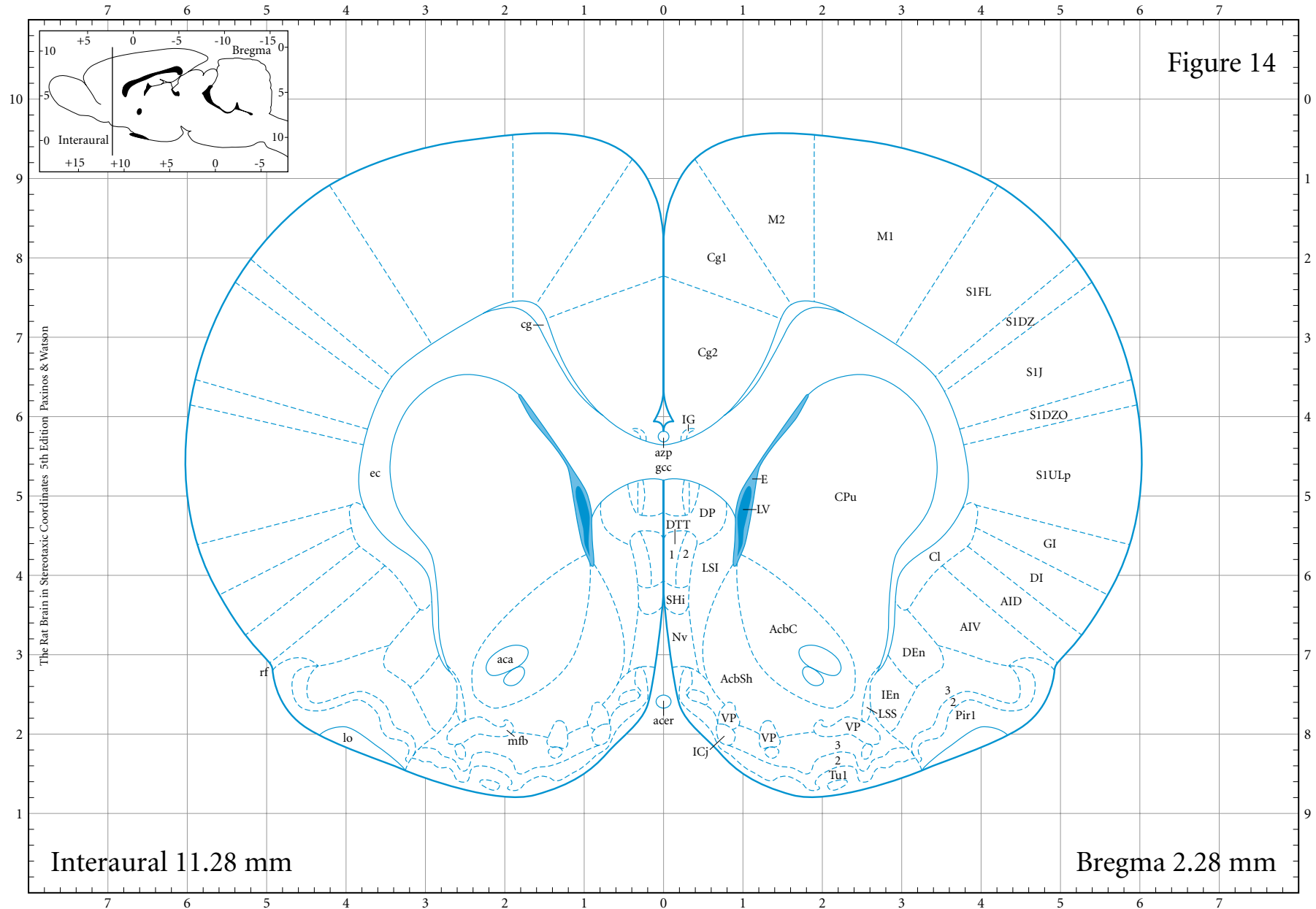
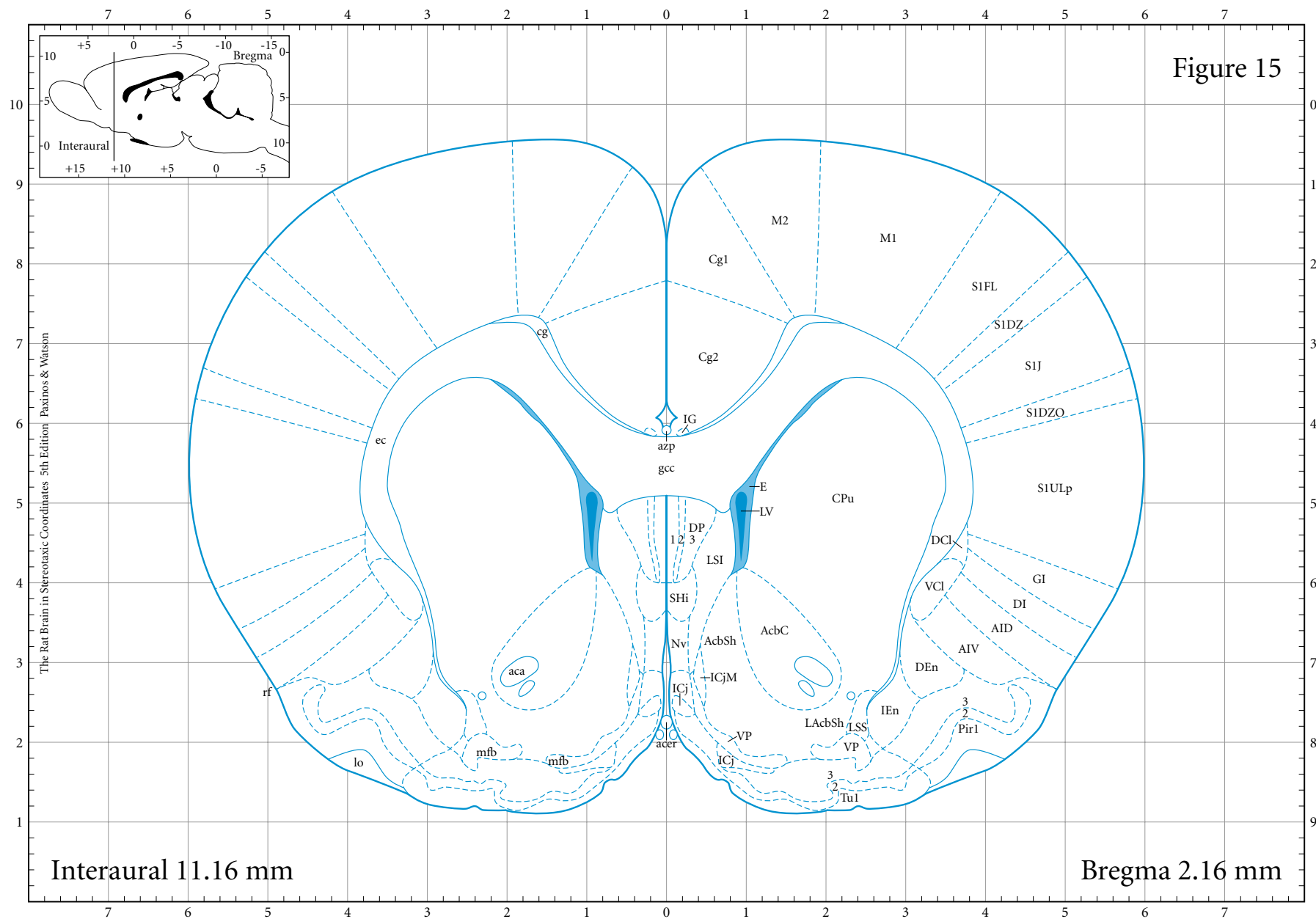


Figure 15



2 layer 2 cortex  
3 layer 3 cortex  
aca ant comm, ant  
AcbC accumbens core  
AcbSh accumbens shell  
AID ant insular dorsal  
AIV ant insular ventral  
azp azyg perical art

cg cingulum  
Cg1 cingulate area 1  
Cg2 cingulate area 2  
CPu caudate putamen  
DCl dorsal claustrum  
DEn dorsal endopirif  
DI dysgran insular  
DP dorsal pedunc cx

E ependyma/subepen  
ec external capsule  
gcc genu of corp call  
GI granular insular  
ICj islands of Calleja  
ICjM major is Calleja  
IEn intermed endopir  
IG indusium griseum

LAcbSh lat accumb shell  
lo lat olfactory tr  
LSI lat septal intermed  
LSS lat stripe of str  
IV lat ventricle  
M1 primary motor cx  
M2 2ary motor cx  
mfb med forebr bundle

Nv navicular nu  
Pir1 piriform layer 1  
rf rhinal fissure  
S1DZ S1 dysgranular zn  
S1DZO S1 oral dysgran zn  
S1FL S1 forelimb region  
S1J S1 cx, jaw region  
S1ULp S1 upper lip region

SHi septohipp nu  
Tu1 olf tub layer 1  
VCl ventral claustrum  
VP ventral pallidum



S1ULp S1 upper lip region  
SHi septohipp nu  
Tu1 olf tub layer 1  
VCl ventral claustrum  
VP ventral pallidum

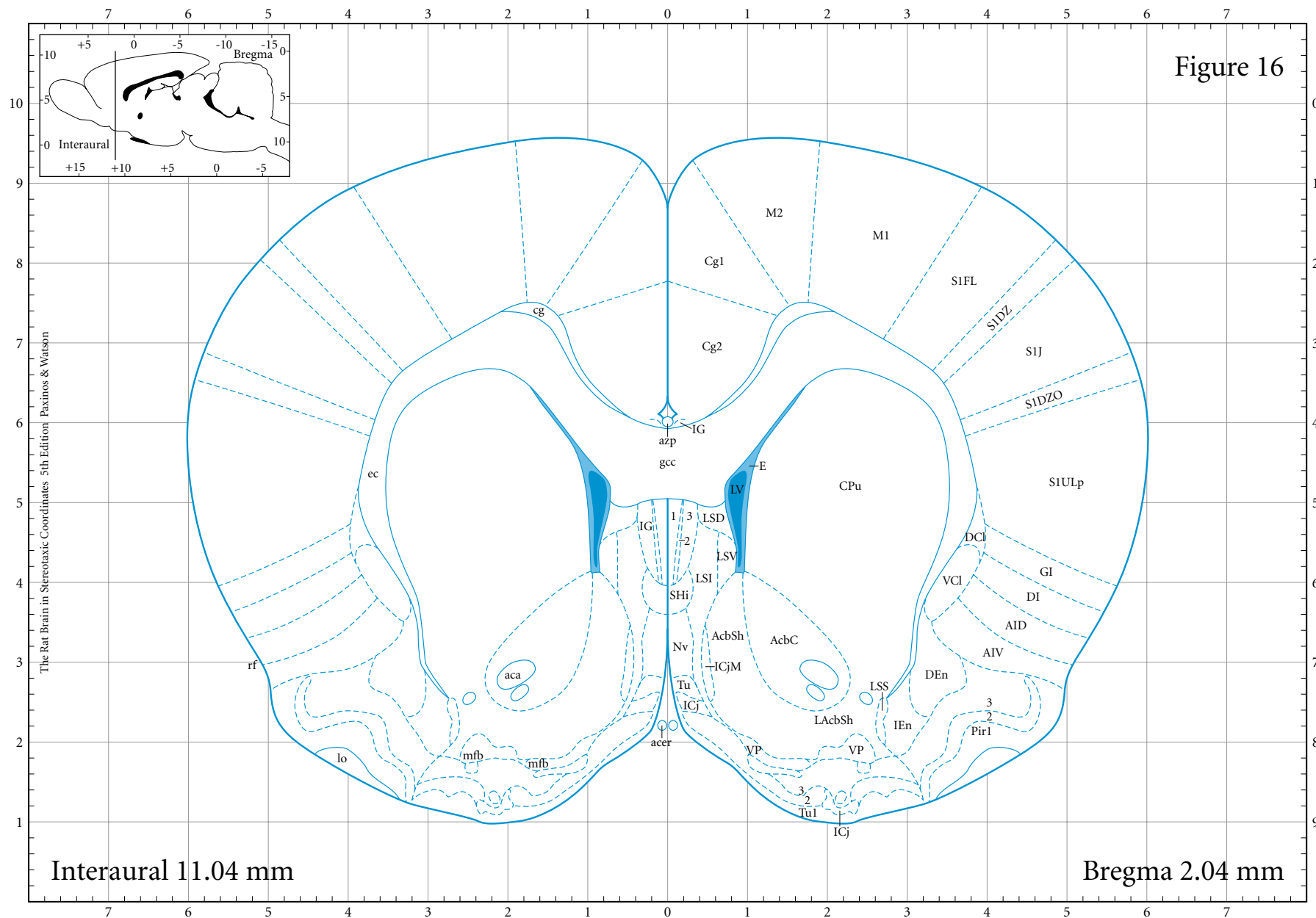
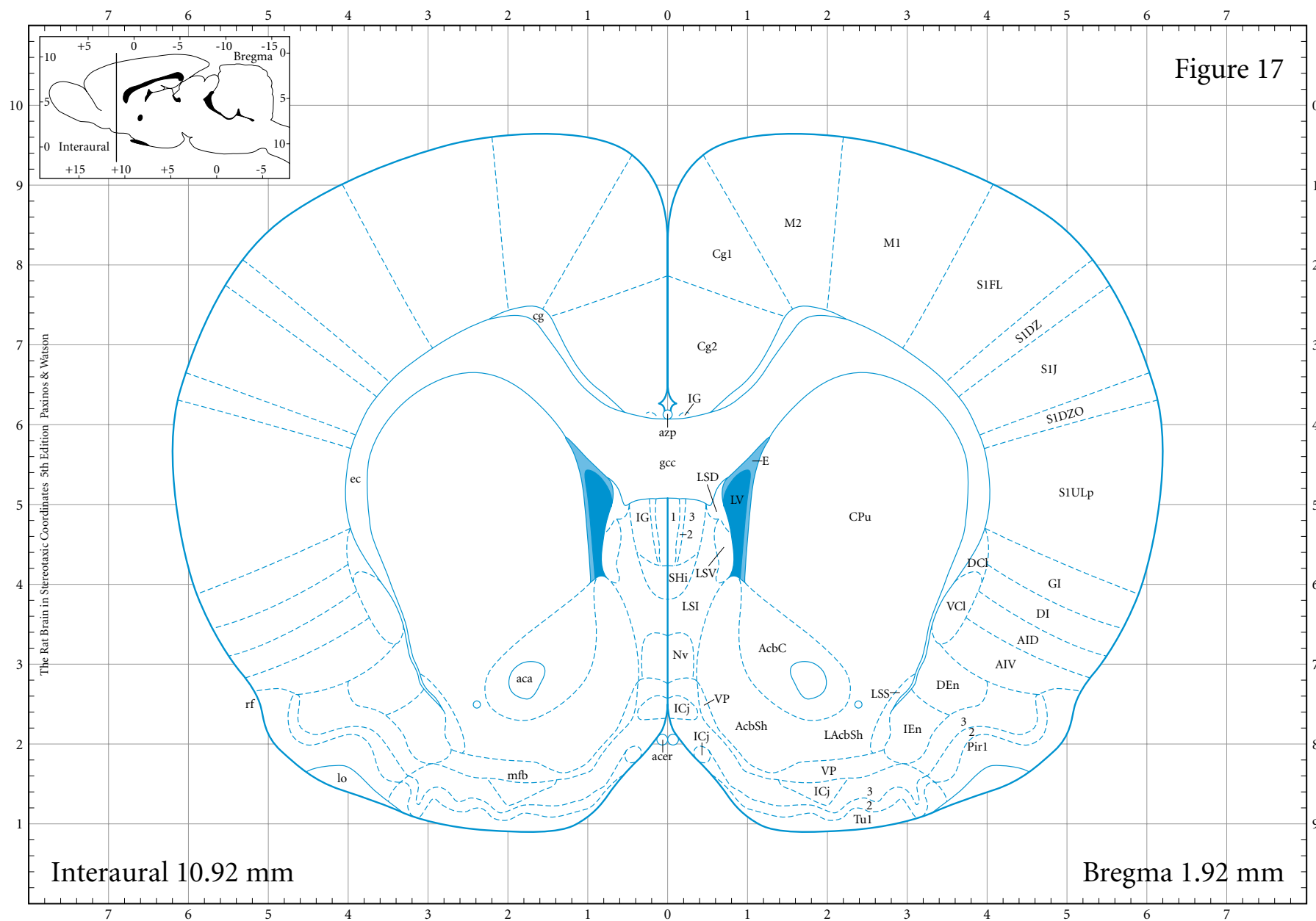


Figure 17



2 layer 2 cortex  
3 layer 3 cortex  
aca ant comm, ant  
AcbC accumbens core  
AcbSh accumbens shell  
AID ant insular dorsal  
AIV ant insular ventral  
azp azgy perical art

cg cingulum  
Cg1 cingulate area 1  
Cg2 cingulate area 2  
CPu caudate putamen  
DCI dorsal claustrum  
DEn dorsal endopirif  
DI dysgran insular  
E ependyma/subepen

ec external capsule  
gcc genu of corp call  
GI granular insular  
ICj islands of Calleja  
IEn intermed endopir  
IG indusium griseum  
LAcbSh lat accumb shell  
lo lat olfactory tr

LSD lat septal dors  
LSI lat septal intermed  
LSS lat stripe of str  
LSV lat septal vent  
LV lat ventricle  
M1 primary motor cx  
M2 2ary motor cx  
mfb med forebr bundle

Nv navicular nu  
Pir1 piriform layer 1  
rf rhinal fissure  
S1DZ S1 dysgranular zn  
S1DZO S1 oral dysgran zn  
S1FL S1 forelimb region  
S1J S1 cx, jaw region  
S1ULp S1 upper lip region

SHi septohipp nu  
Tu1 olf tub layer 1  
VCI ventral claustrum  
VP ventral pallidum

2 layer 2 cortex  
3 layer 3 cortex  
aca ant comm, ant  
AcbC accumbens core  
AcbSh accumbens shell  
AID ant insular dorsal  
AIV ant insular ventral  
azp azyg perical art

cg cingulum  
Cg1 cingulate area 1  
Cg2 cingulate area 2  
CPu caudate putamen  
DCl dorsal claustrum  
DEn dorsal endopirif  
DI dysgran insular  
E ependyma/subepen

ec external capsule  
gcc genu of corp call  
GI granular insular  
ICj islands of Calleja  
ICjM major is Calleja  
IEn intermed endopir  
IG indusium griseum  
LAcbSh lat accumb shell

lo lat olfactory tr  
LSD lat septal dors  
LSI lat septal intermed  
LSS lat stripe of str  
LSV lat septal vent  
LV lat ventricle  
M1 primary motor cx  
M2 2ary motor cx

mbf med forebr bundle  
Pir piriform cx  
rf rhinal fissure  
S1DZ S1 dysgranular zn  
S1DZO S1 oral dysgran zn  
S1FL S1 forelimb region  
S1J S1 cx, jaw region  
S1ULp S1 upper lip region

SHi septohipp nu  
Tu1 olf tub layer 1  
VCl ventral claustrum  
VDB nu vert limb diag b  
VP ventral pallidum

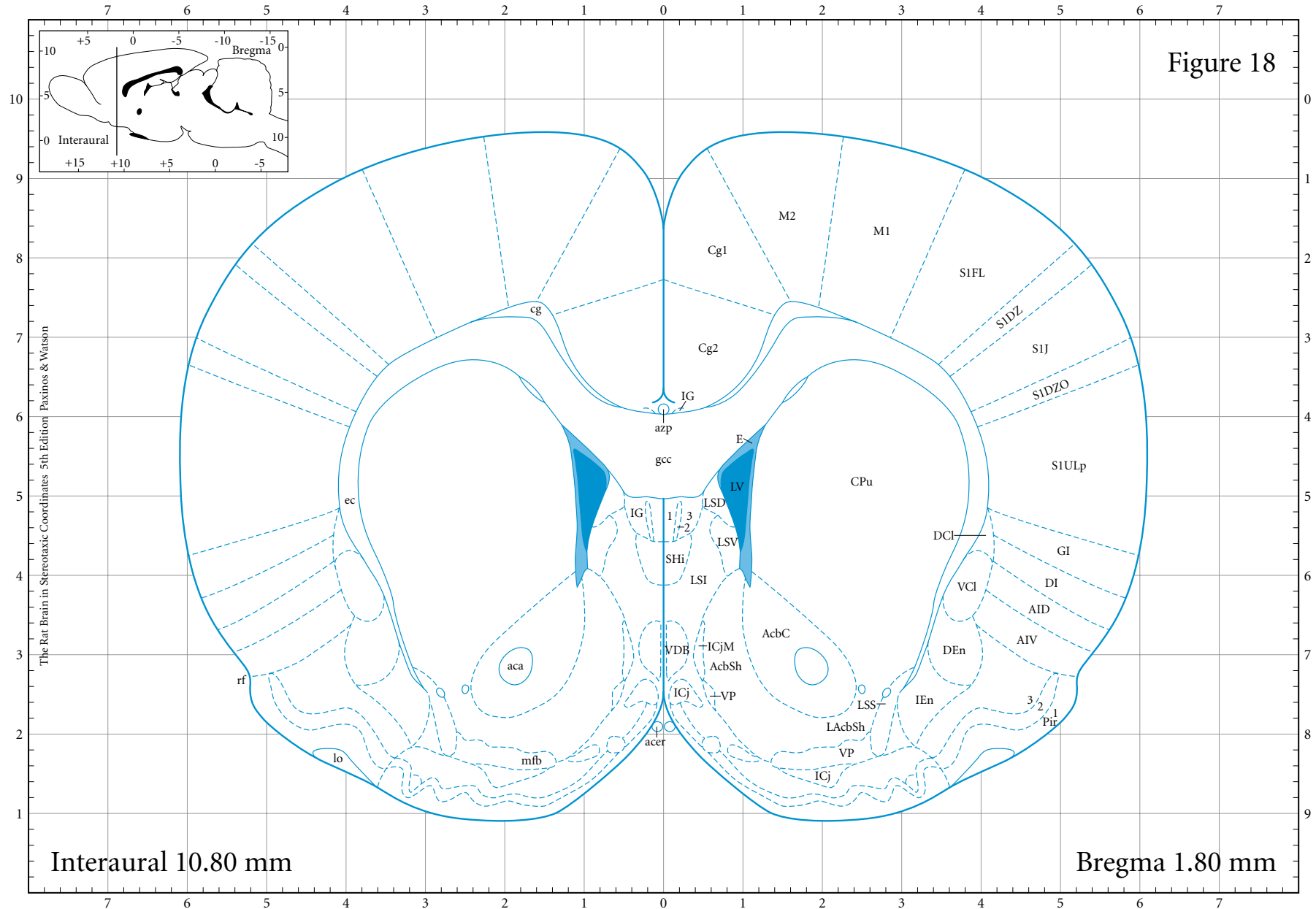
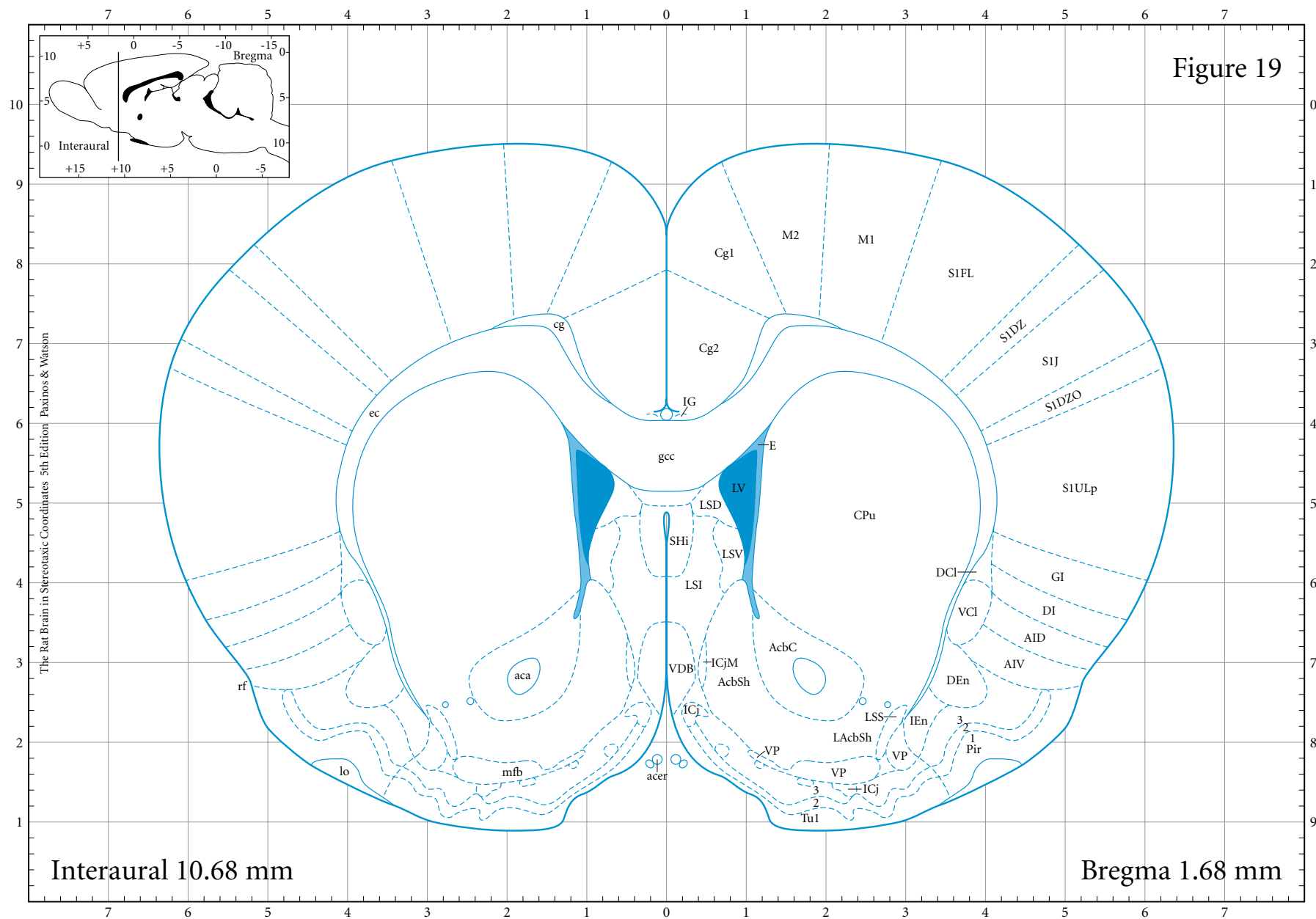


Figure 19



2 layer 2 cortex  
3 layer 3 cortex  
aca ant comm, ant  
AcbC accumbens core  
AcbSh accumbens shell  
AID ant insular dorsal  
AIV ant insular ventral  
cg cingulum

Cg1 cingulate area 1  
Cg2 cingulate area 2  
CPu caudate putamen  
DCl dorsal claustrum  
DEn dorsal endopirif  
DI dysgran insular  
AIV ant insular ventral  
ec external capsule

gcc genu of corp call  
GI granular insular  
ICj islands of Calleja  
ICjM major is Calleja  
IEn intermed endopir  
IG indusium griseum  
LAcbSh lat accumb shell  
lo lat olfactory tr

LSD lat septal dors  
LSI lat septal intermed  
LSS lat stripe of str  
LSV lat septal vent  
LV lat ventricle  
M1 primary motor cx  
M2 2ary motor cx  
mfb med forebr bundle

Pir piriform cx  
rf rhinal fissure  
S1DZ S1 dysgranular zn  
S1DZO S1 oral dysgran zn  
S1FL S1 forelimb region  
S1J S1 cx, jaw region  
S1ULp S1 upper lip region  
SHi septohipp nu

Tu1 olf tub layer 1  
VCl ventral claustrum  
VDB nu vert limb diag b  
VP ventral pallidum

Tu1 olf tub layer 1  
VCl ventral claustrum  
VDB nu vert limb diag b  
VP ventral pallidum

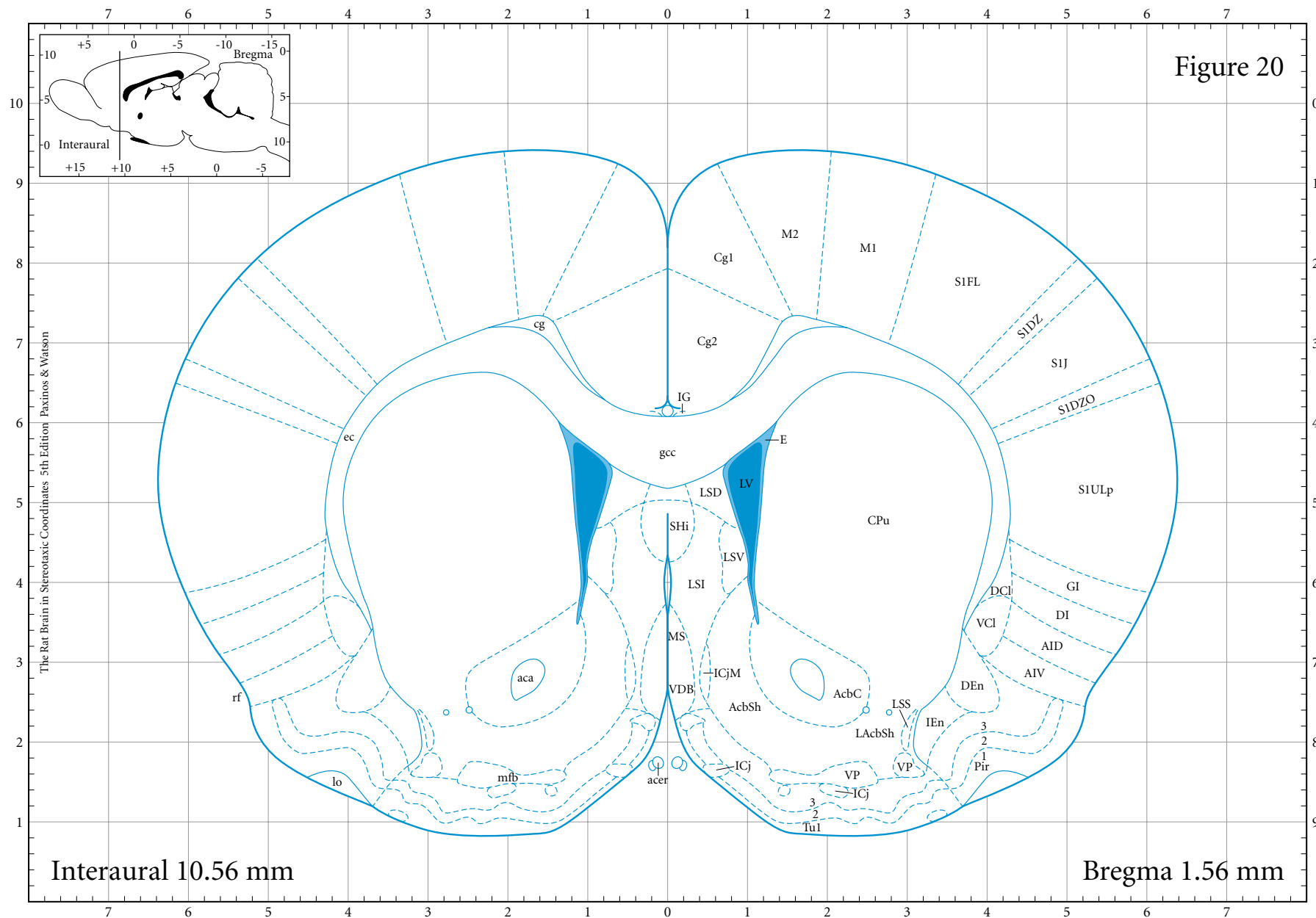
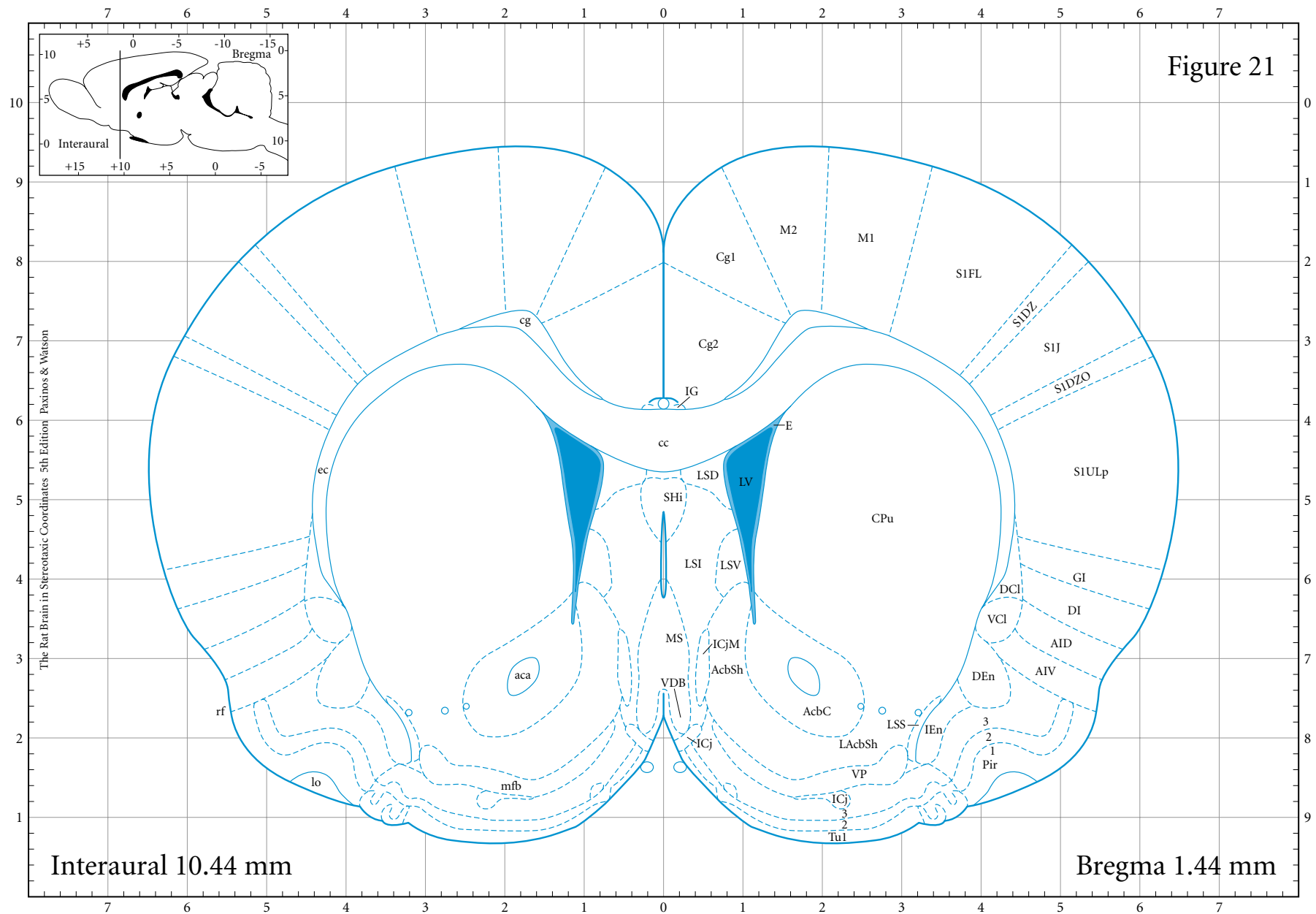


Figure 21



- |                         |                      |                        |                         |                           |                         |
|-------------------------|----------------------|------------------------|-------------------------|---------------------------|-------------------------|
| 2 layer 2 cortex        | cg cingulum          | ec external capsule    | LSD lat septal dors     | MS medial septal nu       | SHi septohipp nu        |
| 3 layer 3 cortex        | Cg1 cingulate area 1 | GI granular insular    | LSI lat septal intermed | Pir piriform cx           | Tu1 olf tub layer 1     |
| aca ant comm, ant       | Cg2 cingulate area 2 | ICj islands of Calleja | LSS lat stripe of str   | rf rhinal fissure         | VCl ventral claustrum   |
| AcbC accumbens core     | CPu caudate putamen  | ICjM major is Calleja  | LSV lat septal vent     | S1DZ S1 dysgranular zn    | VDB nu vert limb diag b |
| AcbSh accumbens shell   | DCl dorsal claustrum | IEn intermed endopir   | LV lat ventricle        | S1DZO S1 oral dysgran zn  | VP ventral pallidum     |
| AID ant insular dorsal  | DEn dorsal endopirif | IG indusium griseum    | M1 primary motor cx     | S1FL S1 forelimb region   |                         |
| AIV ant insular ventral | DI dysgran insular   | LAcSh lat accumb shell | M2 2ary motor cx        | S1J S1 cx, jaw region     |                         |
| cc corpus callosum      | E ependyma/subepen   | lo lat olfactory tr    | mfb med forebr bundle   | S1ULp S1 upper lip region |                         |

2 layer 2 cortex  
3 layer 3 cortex  
aca ant comm, ant  
AcbC accumbens core  
AcbSh accumbens shell  
AID ant insular dorsal  
AIV ant insular ventral  
cc corpus callosum

cg cingulum  
Cg1 cingulate area 1  
Cg2 cingulate area 2  
CPu caudate putamen  
DCl dorsal claustrum  
DEn dorsal endopirif  
DI dysgran insular  
E ependyma/subepen

ec external capsule  
GI granular insular  
ICj islands of Calleja  
ICjM major is Calleja  
IEn intermed endopir  
IG indusium griseum  
LAcbSh lat accumb shell  
lo lat olfactory tr

LSD lat septal dors  
LSI lat septal intermed  
LSS lat stripe of str  
LSV lat septal vent  
LV lat ventricle  
M1 primary motor cx  
M2 2ary motor cx  
mfb med forebr bundle

MS medial septal nu  
Pir1 piriform layer 1  
PLd paralambdoid sept  
rf rhinal fissure  
S1DZ S1 dysgranular zn  
S1DZO S1 oral dysgran zn  
S1FL S1 forelimb region  
S1J S1 cx, jaw region

S1ULp S1 upper lip region  
SHi septohipp nu  
Tu1 olf tub layer 1  
VCl ventral claustrum  
VDB nu vert limb diag b  
VP ventral pallidum

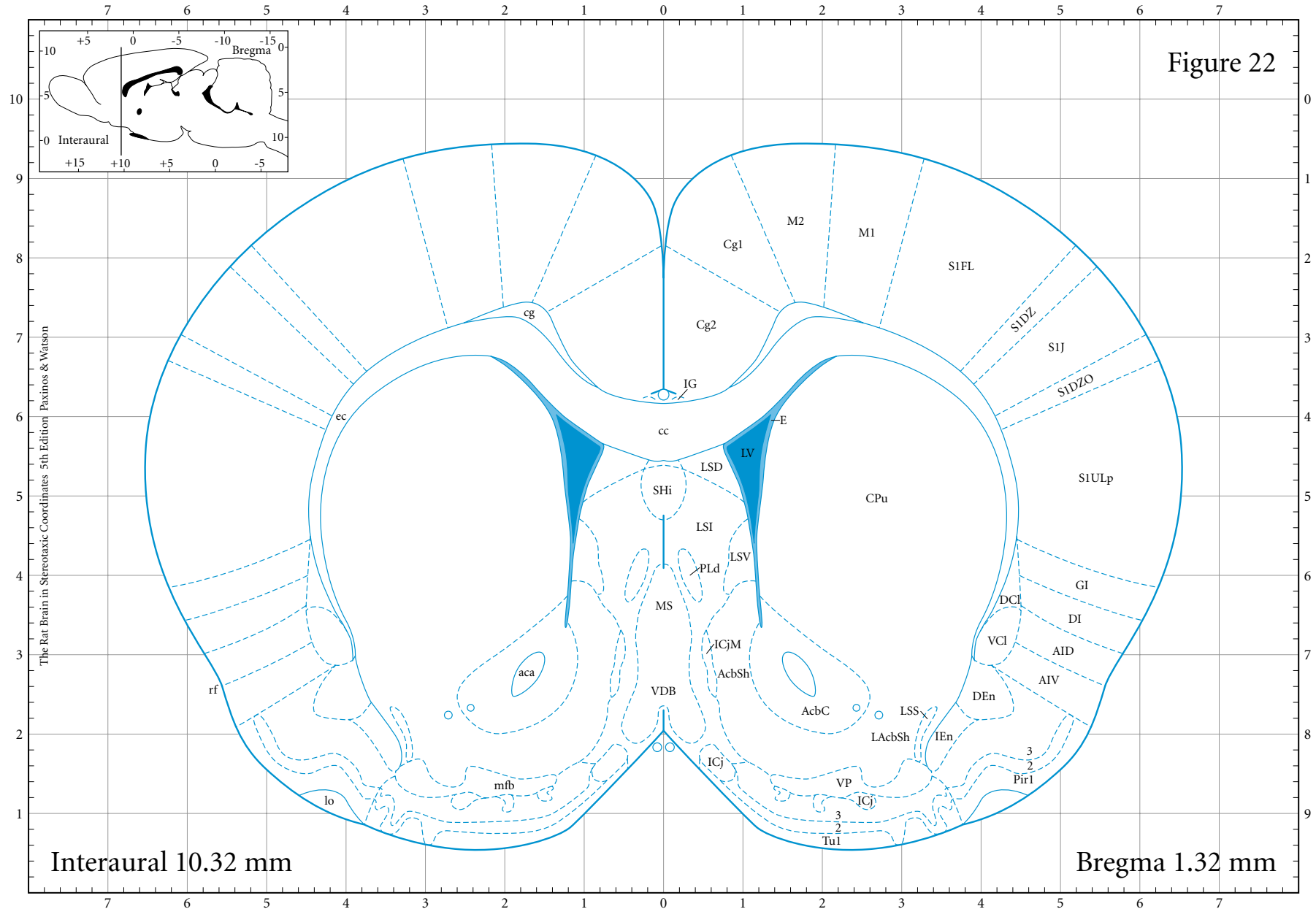
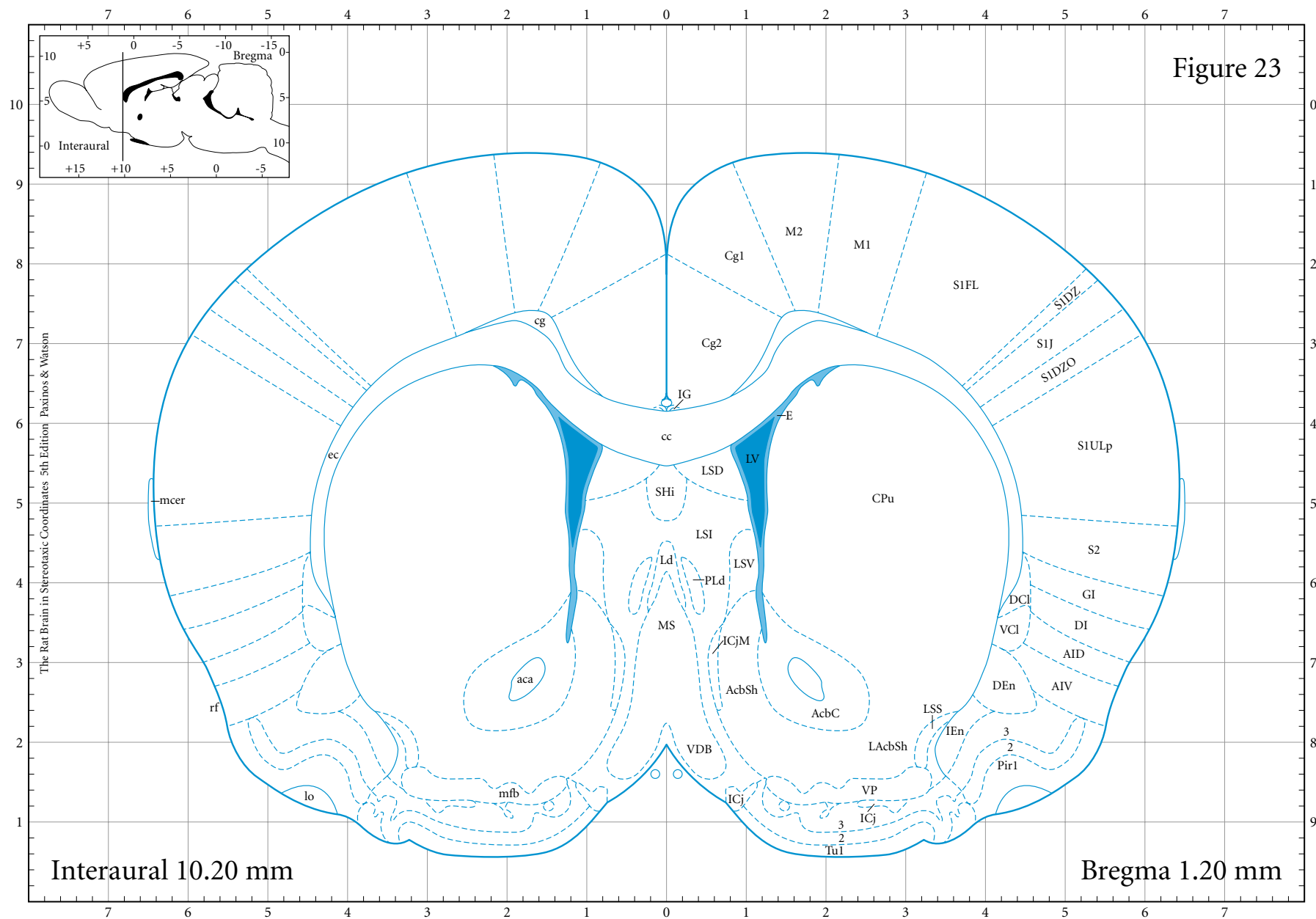




Figure 23



2 layer 2 cortex  
3 layer 3 cortex  
aca ant comm, ant  
AcbC accumbens core  
AcbSh accumbens shell  
AID ant insular dorsal  
AIV ant insular ventral  
cc corpus callosum  
cg cingulum

Cg1 cingulate area 1  
Cg2 cingulate area 2  
CPu caudate putamen  
DCl dorsal claustrum  
DEn dorsal endopirif  
DI dysgran insular  
E ependyma/subepen  
ec external capsule  
GI granular insular

ICj islands of Calleja  
ICjM major is Calleja  
IEn intermed endopir  
IG indusium griseum  
LAcSh lat accumb shell  
Ld lambdoid septal zn  
lo lat olfactory tr  
LSD lat septal dors  
LSI lat septal intermed

LSS lat stripe of str  
LSV lat septal vent  
LV lat ventricle  
M1 primary motor cx  
M2 2ary motor cx  
mcer mid cerebral art  
mfbb med forebr bundle  
MS medial septal nu  
Pir1 piriform layer 1

PLd paralambdoid sept  
rf rhinal fissure  
S1DZ S1 dysgranular zn  
S1DZO S1 oral dysgran zn  
S1FL S1 forelimb region  
S1J S1 cx, jaw region  
S1ULp S1 upper lip region  
S2 2ary somatosens  
SHi septohipp nu

Tu1 olf tub layer 1  
VCl ventral claustrum  
VDB nu vert limb diag b  
VP ventral pallidum

S1FL S1 forelimb region  
S2 2ary somatosens  
SHi septohipp nu  
SIB subst innom basal  
Tu1 olf tub layer 1  
VCl ventral claustrum  
VDB nu vert limb diag b  
VP ventral pallidum

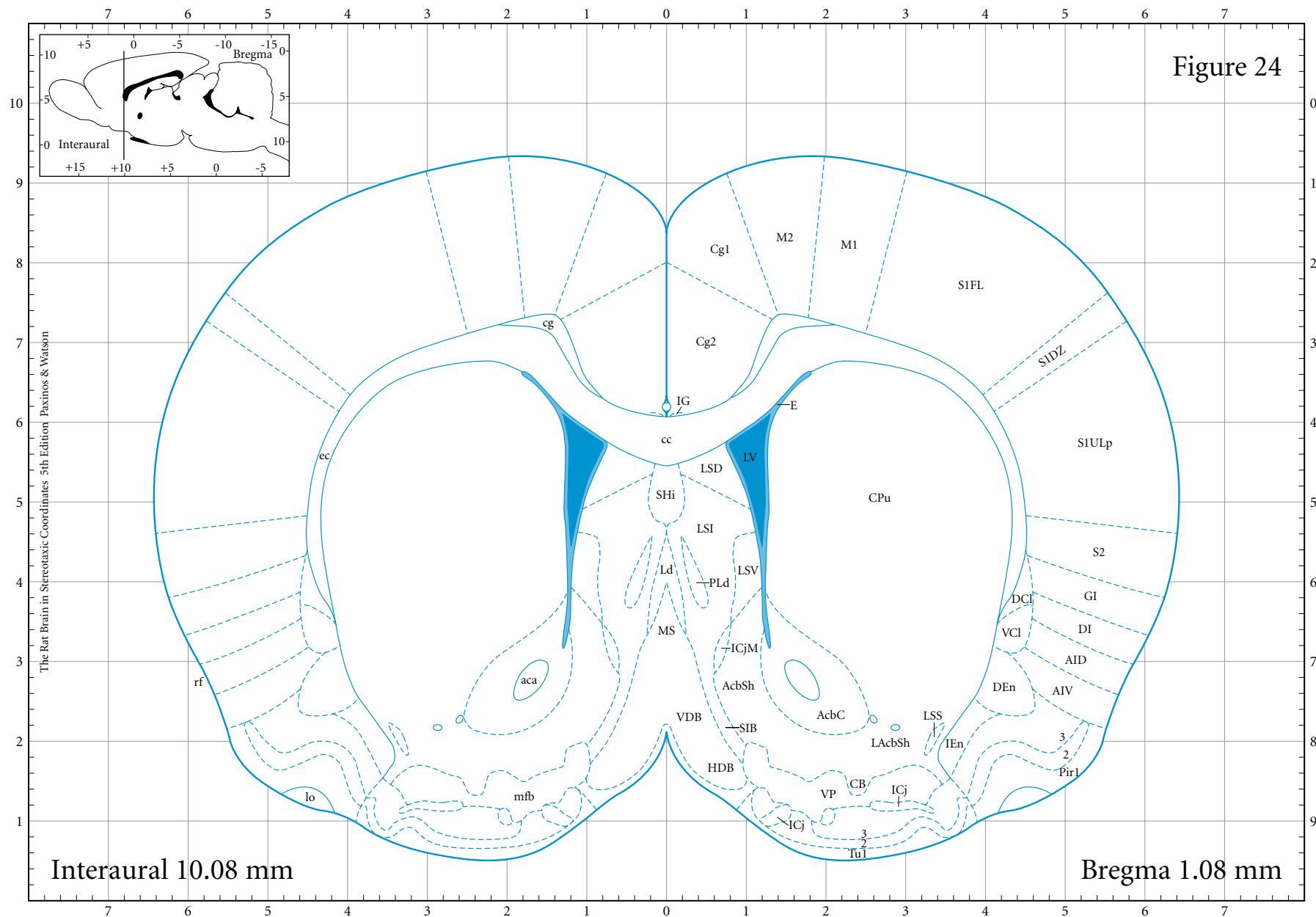
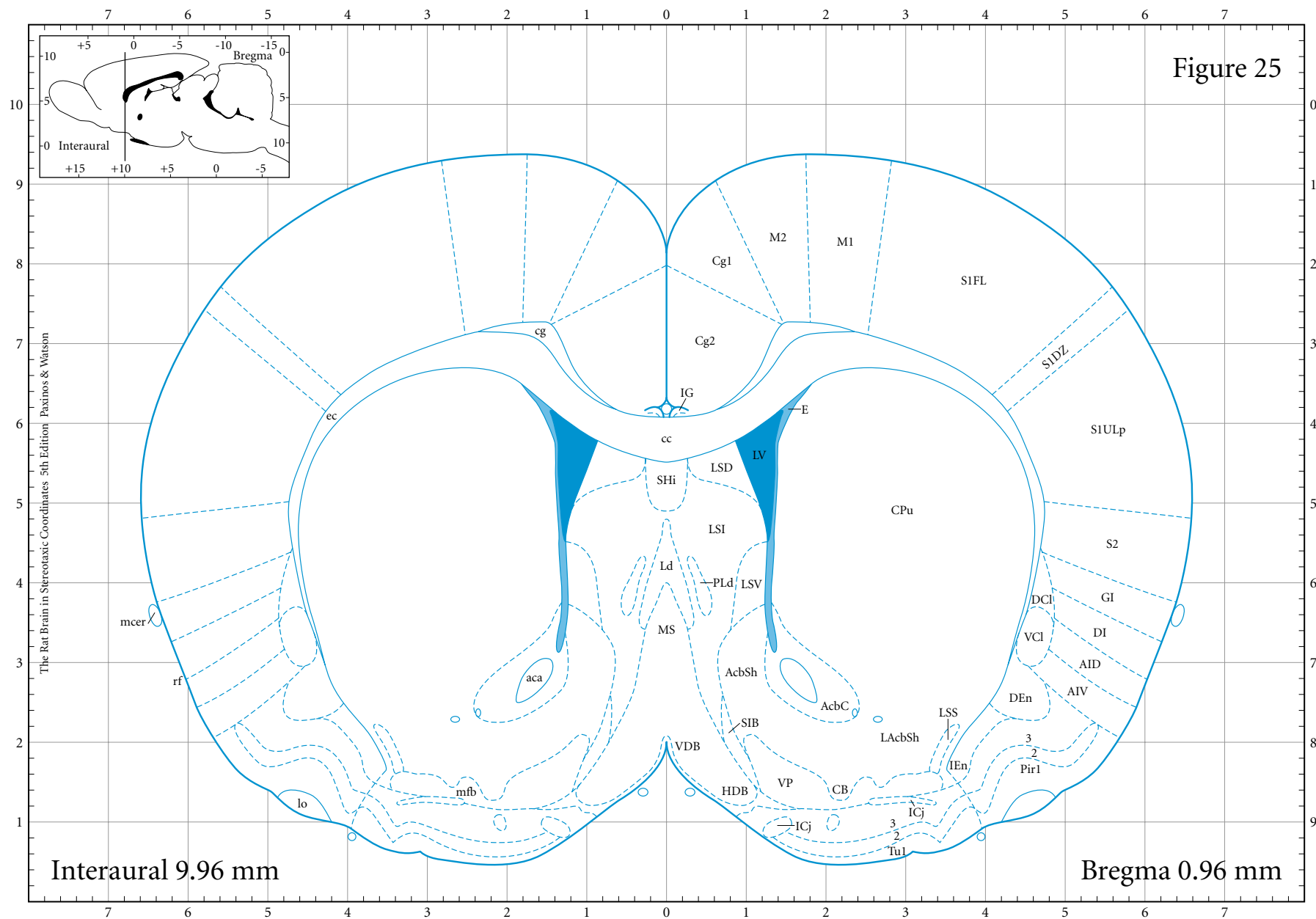


Figure 25



- |                         |                      |                        |                         |                           |                         |
|-------------------------|----------------------|------------------------|-------------------------|---------------------------|-------------------------|
| 2 layer 2 cortex        | cg cingulum          | GI granular insular    | LSI lat septal intermed | Pir1 piriform layer 1     | Tu1 olf tub layer 1     |
| 3 layer 3 cortex        | Cg1 cingulate area 1 | HDB nu horiz limb DB   | LSS lat stripe of str   | PLd paralambdoid sept     | VCL ventral claustrum   |
| aca ant comm, ant       | Cg2 cingulate area 2 | ICj islands of Calleja | LSV lat septal vent     | rf rhinal fissure         | VDB nu vert limb diag b |
| AcbC accumbens core     | CPu caudate putamen  | IEn intermed endopir   | LV lat ventricle        | S1DZ S1 dysgranular zn    | VP ventral pallidum     |
| AcbSh accumbens shell   | DCl dorsal claustrum | IG indusium griseum    | M1 primary motor cx     | S1FL S1 forelimb region   |                         |
| AID ant insular dorsal  | DEn dorsal endopirif | LAcSh lat accumb shell | M2 2ary motor cx        | S1ULp S1 upper lip region |                         |
| AIV ant insular ventral | DI dysgran insular   | Ld lambdoid septal zn  | mcer mid cerebral art   | S2 2ary somatosens        |                         |
| CB cell bridges         | E ependyma/subepen   | lo lat olfactory tr    | mbf med forebr bundle   | SHi septohipp nu          |                         |
| cc corpus callosum      | ec external capsule  | LSD lat septal dors    | MS medial septal nu     | SIB subst innom basal     |                         |

2 layer 2 cortex  
3 layer 3 cortex  
aca ant comm, ant  
AcbC accumbens core  
AcbSh accumbens shell  
AID ant insular dorsal  
AIV ant insular ventral  
CB cell bridges  
cc corpus callosum

cg cingulum  
Cg1 cingulate area 1  
Cg2 cingulate area 2  
CPu caudate putamen  
DCl dorsal claustrum  
DEn dorsal endopirif  
DI dysgran insular  
E ependyma/subepen  
ec external capsule

GI granular insular  
HDB nu horiz limb DB  
ICj islands of Calleja  
IEn intermed endopir  
IG indusium griseum  
LAcbSh lat accumb shell  
Ld lambdoid septal zn  
lo lat olfactory tr  
LSD lat septal dors

LSI lat septal intermed  
LSS lat stripe of str  
LSV lat septal vent  
LV lat ventricle  
M1 primary motor cx  
M2 2ary motor cx  
mcer mid cerebral art  
mfb med forebr bundle  
MS medial septal nu

Pir1 piriform layer 1  
PLd paralambdoid sept  
rf rhinal fissure  
S1DZ S1 dysgranular zn  
S1FL S1 forelimb region  
S1ULp S1 upper lip region  
S2 2ary somatosens  
SHi septohipp nu  
SIB subst innom basal

STMA ST med div, ant  
Tu1 olf tub layer 1  
VCI ventral claustrum  
VDB nu vert limb diag b  
VP ventral pallidum

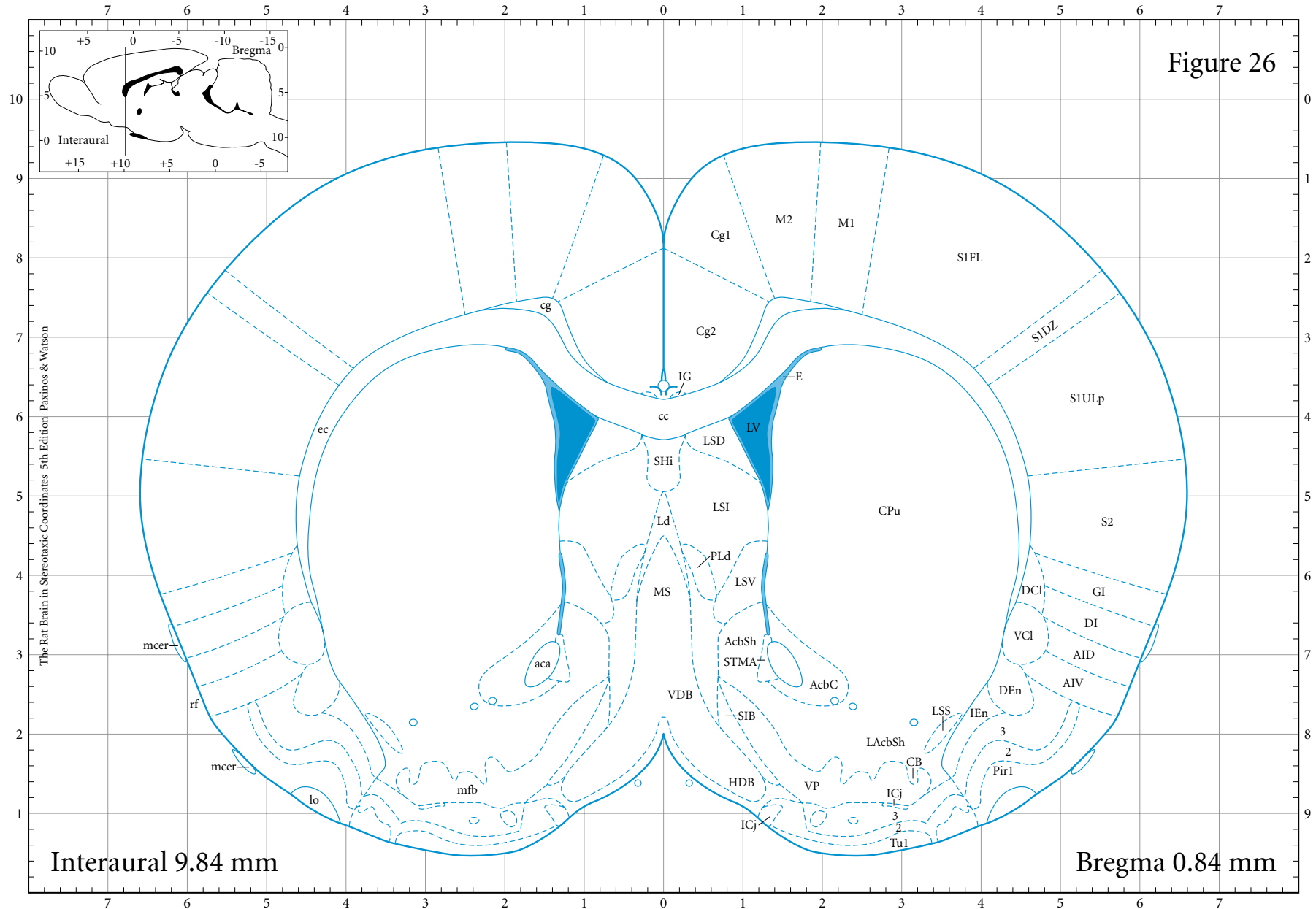
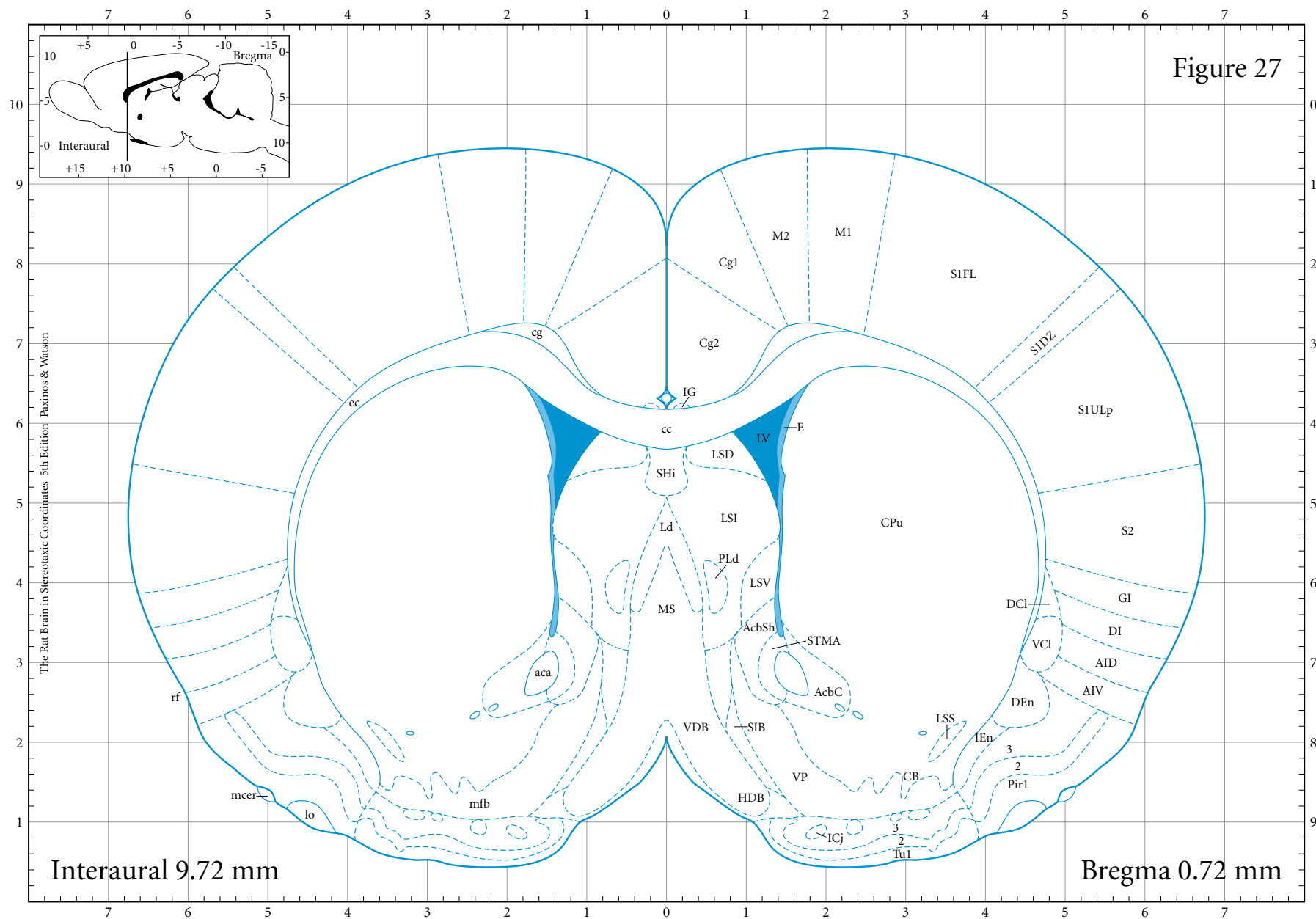


Figure 27



- |                         |                      |                        |                         |                           |                         |
|-------------------------|----------------------|------------------------|-------------------------|---------------------------|-------------------------|
| 2 layer 2 cortex        | cc corpus callosum   | E ependyma/subepen     | lo lat olfactory tr     | mfb med forebr bundle     | S2 2ary somatosens      |
| 3 layer 3 cortex        | cg cingulum          | ec external capsule    | LSD lat septal dors     | MS medial septal nu       | SHi septohipp nu        |
| aca ant comm, ant       | Cg1 cingulate area 1 | GI granular insular    | LSI lat septal intermed | Pir1 piriform layer 1     | SIB subst innom basal   |
| AcbC accumbens core     | Cg2 cingulate area 2 | HDB nu horiz limb DB   | LSV lat septal vent     | PLd paralambdoid sept     | STMA ST med div, ant    |
| AcbSh accumbens shell   | CPu caudate putamen  | ICj islands of Calleja | IV lat ventricle        | rf rhinal fissure         | Tu1 olf tub layer 1     |
| AID ant insular dorsal  | IEn intermed endopir | M1 primary motor cx    | M2 2ary motor cx        | S1DZ S1 dysgranular zn    | VCL ventral claustrum   |
| AIV ant insular ventral | DEn dorsal endopirif | IG indusium griseum    |                         | S1FL S1 forelimb region   | VDB nu vert limb diag b |
| CB cell bridges         | DI dysgran insular   | Ld lambdoid septal zn  |                         | S1ULp S1 upper lip region | VP ventral pallidum     |
|                         |                      |                        |                         |                           |                         |

2 layer 2 cortex  
3 layer 3 cortex  
aca ant comm, ant  
AcbC accumbens core  
AcbSh accumbens shell  
AID ant insular dorsal  
AIV ant insular ventral  
CB cell bridges  
cc corpus callosum

cg cingulum  
Cg1 cingulate area 1  
Cg2 cingulate area 2  
CPu caudate putamen  
DCl dorsal claustrum  
DEn dorsal endopirif  
DI dysgran insular  
E ependyma/subepen  
ec external capsule

GI granular insular  
HDB nu horiz limb DB  
ICj islands of Calleja  
IEn intermed endopir  
IG indusium griseum  
IPAC interstitial nu acp  
Ld lambdoid septal zn  
lo lat olfactory tr  
LPO lat preoptic area

LSD lat septal dors  
LSI lat septal intermed  
LSV lat septal vent  
LV lat ventricle  
M1 primary motor cx  
M2 2ary motor cx  
mfbb med forebr bundle  
MS medial septal nu  
Pir1 piriform layer 1

PLd paralambdoid sept  
rf rhinal fissure  
S1DZ S1 dysgranular zn  
S1FL S1 forelimb region  
S1ULp S1 upper lip region  
S2 2ary somatosens  
SHi septohipp nu  
SHy septohypothal nu  
SIB subst innom basal

STMA ST med div, ant  
Tu1 olf tub layer 1  
VCl ventral claustrum  
VDB nu vert limb diag b  
VOLT vasc org lam term  
VP ventral pallidum

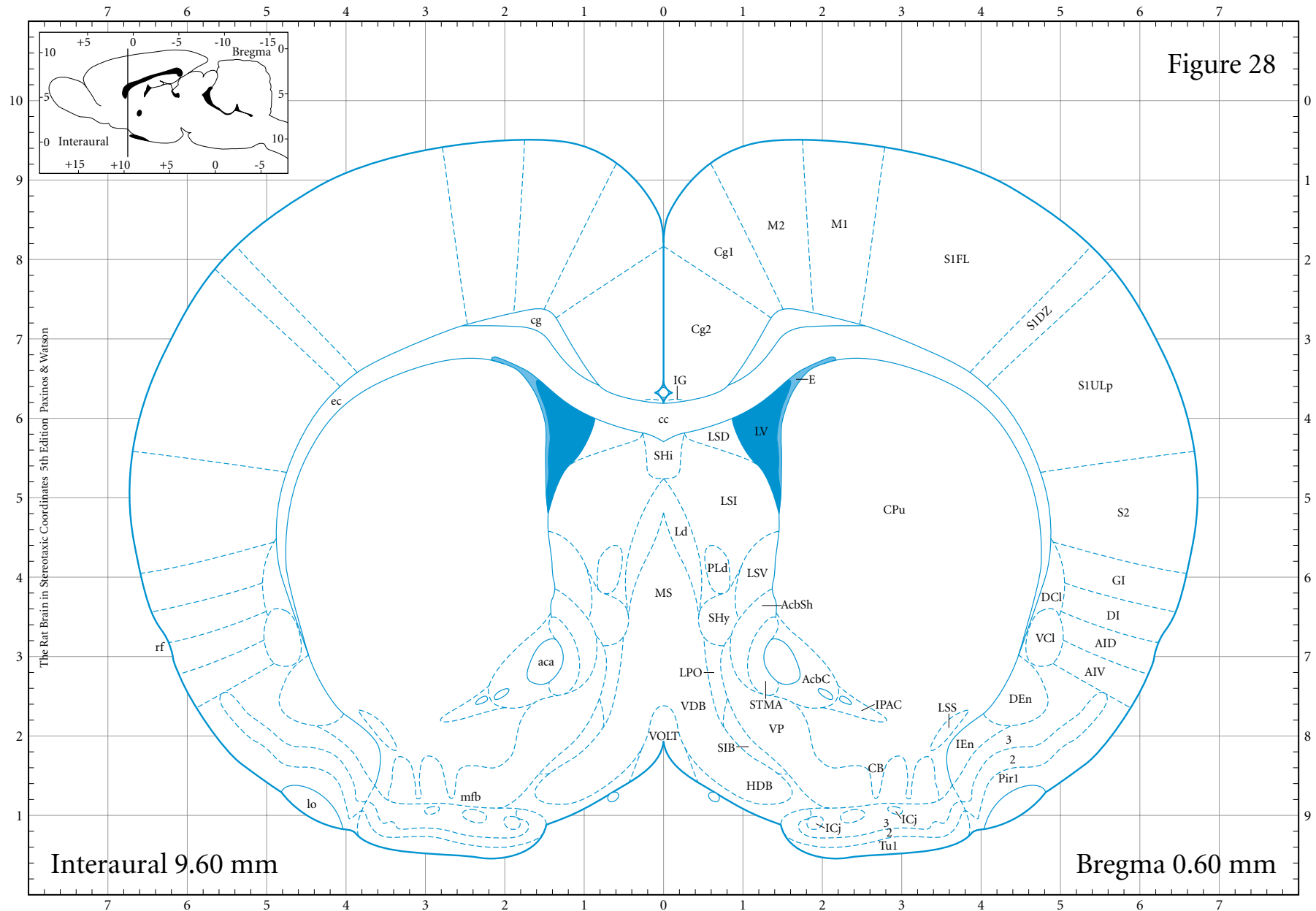
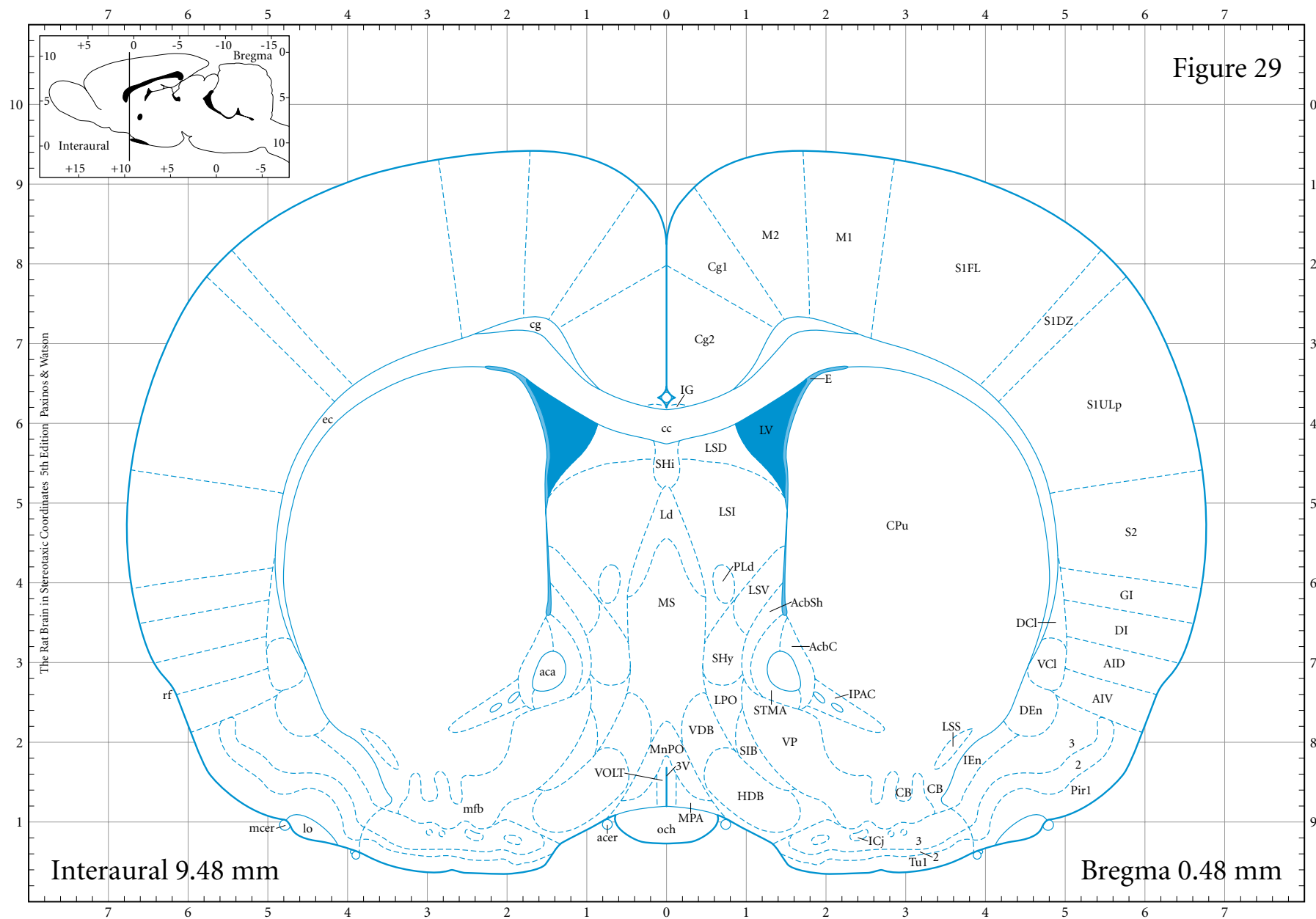


Figure 29



2 layer 2 cortex	AIV ant insular ventral	DCl dorsal claustrum	ICj islands of Calleja	LSD lat septal dors	mfb med forebr bundle	rf rhinal fissure	SIB subst innom basal
3 layer 3 cortex	CB cell bridges	DEn dorsal endopirif	IEEn intermed endopir	LSI lat septal intermed	MnPO median preoptic nu	S1DZ S1 dysgranular zn	STMA ST med div, ant
3V 3rd ventricle	cc corpus callosum	DI dysgran insular	IG indusium griseum	LSV lat septal vent	MPA med preoptic area	S1FL S1 forelimb region	Tu1 olf tub layer 1
aca ant comm, ant	cg cingulum	E ependyma/subepen	IPAC interstitial nu acp	LV lat ventricle	MS medial septal nu	S1ULp S1 upper lip region	VCl ventral claustrum
AcbC accumbens core	Cg1 cingulate area 1	ec external capsule	Ld lambdoid septal zn	M1 primary motor cx	och optic chiasm	S2 2ary somatosens	VDB nu vert limb diag b
AcbSh accumbens shell	Cg2 cingulate area 2	GI granular insular	lo lat olfactory tr	M2 2ary motor cx	Pir1 piriform layer 1	SHi septohipp nu	VOLT vasc org lam term
AID ant insular dorsal	CPu caudate putamen	HDB nu horiz limb DB	LPO lat preoptic area	mcer mid cerebral art	PLd paralambdoid sept	SHy septohypothal nu	VP ventral pallidum

2 layer 2 cortex	cc corpus callosum	DI dysgran insular	IG indusium griseum	LSS lat stripe of str	MPA med preoptic area	S1HL S1 hindlimb region	STLV ST lat div, vent
3 layer 3 cortex	cg cingulum	E ependyma/subepen	IPAC interstitial nu acp	LSV lat septal vent	MS medial septal nu	S1ULp S1 upper lip region	STMA ST med div, ant
3V 3rd ventricle	Cg1 cingulate area 1	ec external capsule	Ld lambdoid septal zn	LV lat ventricle	och optic chiasm	S2 2ary somatosens	STMV ST med div, vent
4 layer 4 cortex	Cg2 cingulate area 2	GI granular insular	lo lat olfactory tr	M1 primary motor cx	Pir1 piriform layer 1	SHi septohipp nu	Tu1 olf tub layer 1
aca ant comm, ant	CPu caudate putamen	HDB nu horiz limb DB	LPO lat preoptic area	M2 2ary motor cx	rf rhinal fissure	SHy septohypothal nu	VCl ventral claustrum
AID ant insular dorsal	DCI dorsal claustrum	ICj islands of Calleja	LSD lat septal dors	mbf med forebr bundle	S1DZ S1 dysgranular zn	SIB subst innom basal	VOLT vasc org lam term
AIV ant insular ventral	DEn dorsal endopirif	IEn intermed endopir	LSI lat septal intermed	MnPO median preoptic nu	S1FL S1 forelimb region	STLP ST lat div, post	VP ventral pallidum
							ZL zona limitans

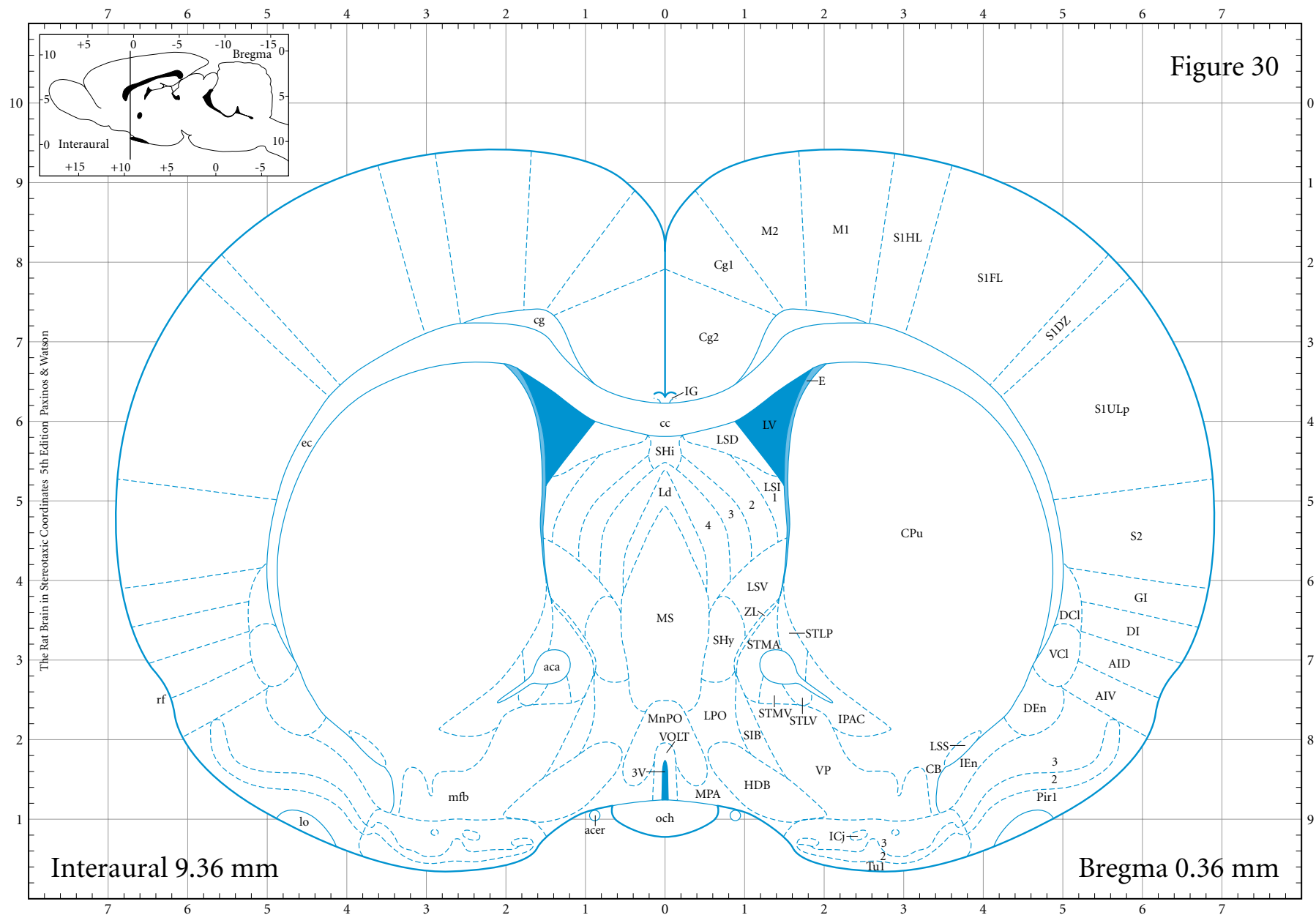
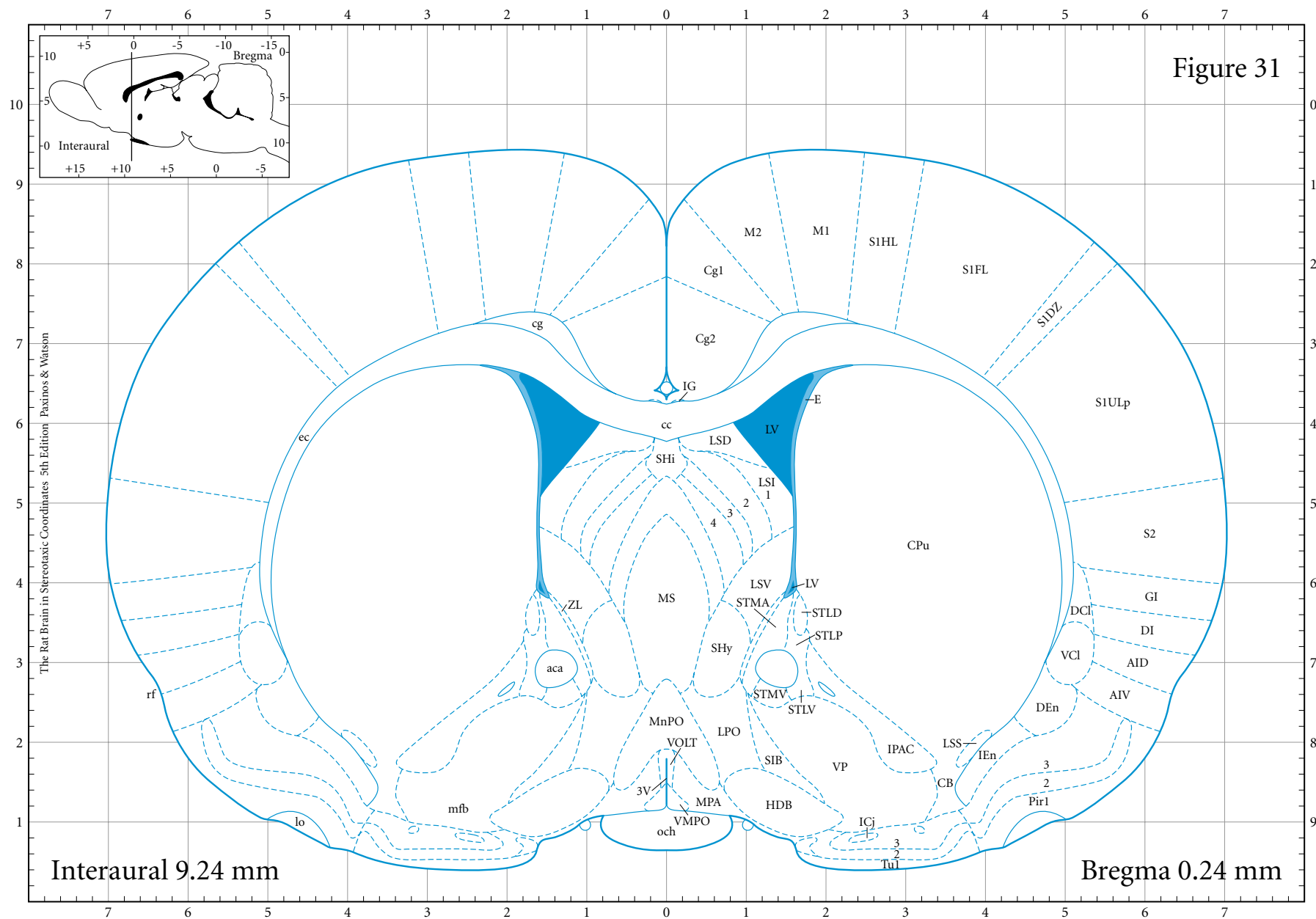


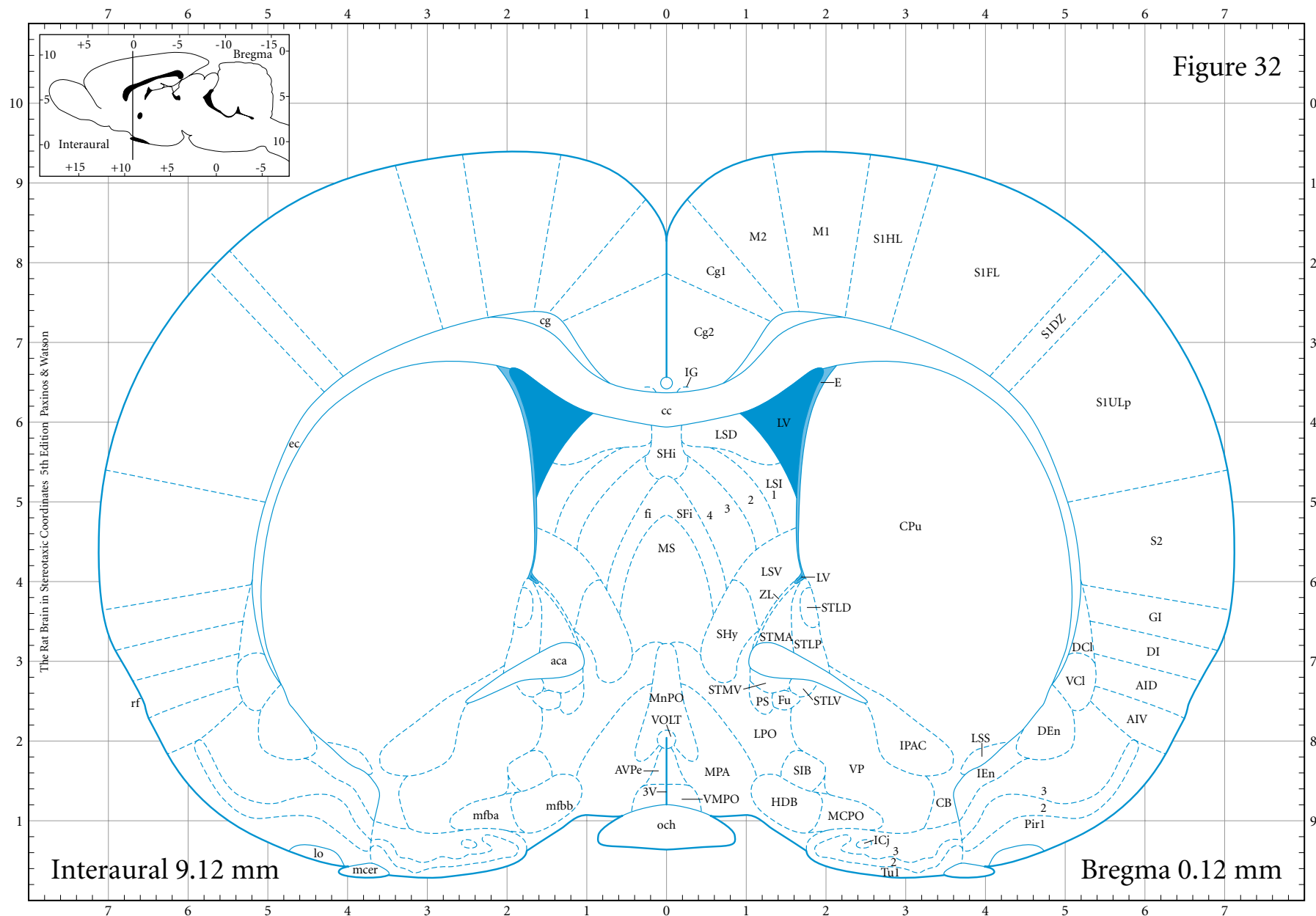


Figure 31



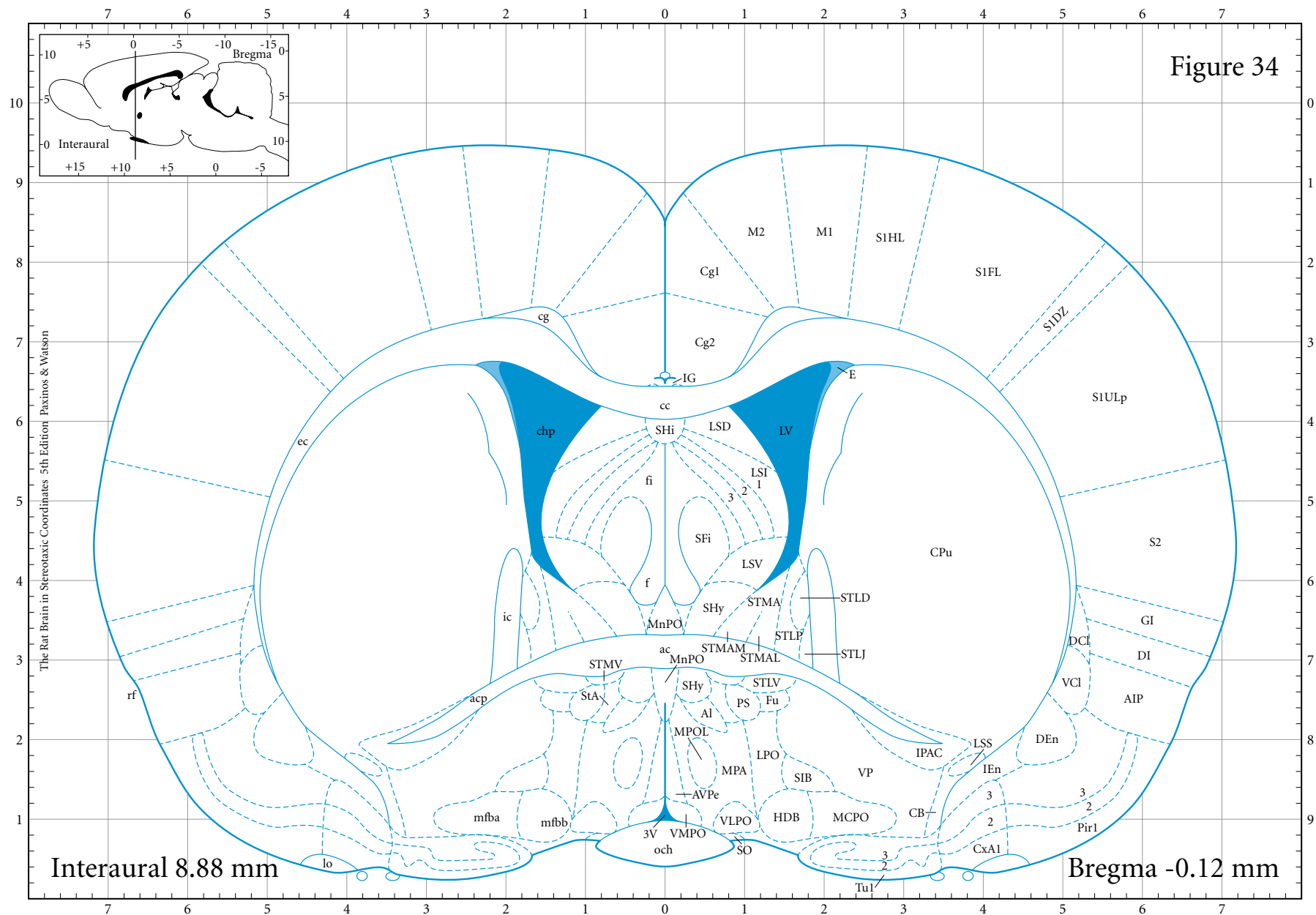
- |                         |                      |                          |                         |                         |                           |                       |                        |
|-------------------------|----------------------|--------------------------|-------------------------|-------------------------|---------------------------|-----------------------|------------------------|
| 2 layer 2 cortex        | cg cingulum          | ec external capsule      | LPO lat preoptic area   | mfb med forebr bundle   | S1DZ S1 dysgranular zn    | STLD STL dorsal       | VOLT vasc org lam term |
| 3 layer 3 cortex        | Cg1 cingulate area 1 | GI granular insular      | LSD lat septal dors     | MnPO median preoptic nu | S1FL S1 forelimb region   | STLP ST lat div, post | VP ventral pallidum    |
| 4 layer 4 cortex        | Cg2 cingulate area 2 | HDB nu horiz limb DB     | LSI lat septal intermed | MPA med preoptic area   | S1HL S1 hindlimb region   | STLV ST lat div, vent |                        |
| aca ant comm, ant       | CPu caudate putamen  | ICj islands of Calleja   | LSS lat stripe of str   | MS medial septal nu     | S1ULp S1 upper lip region | STMA ST med div, ant  |                        |
| AID ant insular dorsal  | DCI dorsal claustrum | IEn intermed endopir     | LSV lat septal vent     | och optic chiasm        | S2 2ary somatosens        | STMV ST med div, vent |                        |
| AIV ant insular ventral | DEN dorsal endopirif | IG indusium griseum      | LV lat ventricle        | P3V preopt recess 3V    | SHi septohipp nu          | Tu1 olf tub layer 1   |                        |
| CB cell bridges         | DI dysgran insular   | IPAC interstitial nu acp | M1 primary motor cx     | Pir1 piriform layer 1   | SHy septohypothal nu      | VCI ventral claustrum |                        |
| cc corpus callosum      | E ependyma/subepen   | lo lat olfactory tr      | M2 2ary motor cx        | rf rhinal fissure       | SIB subst innom basal     | VMPO ventromed preopt |                        |

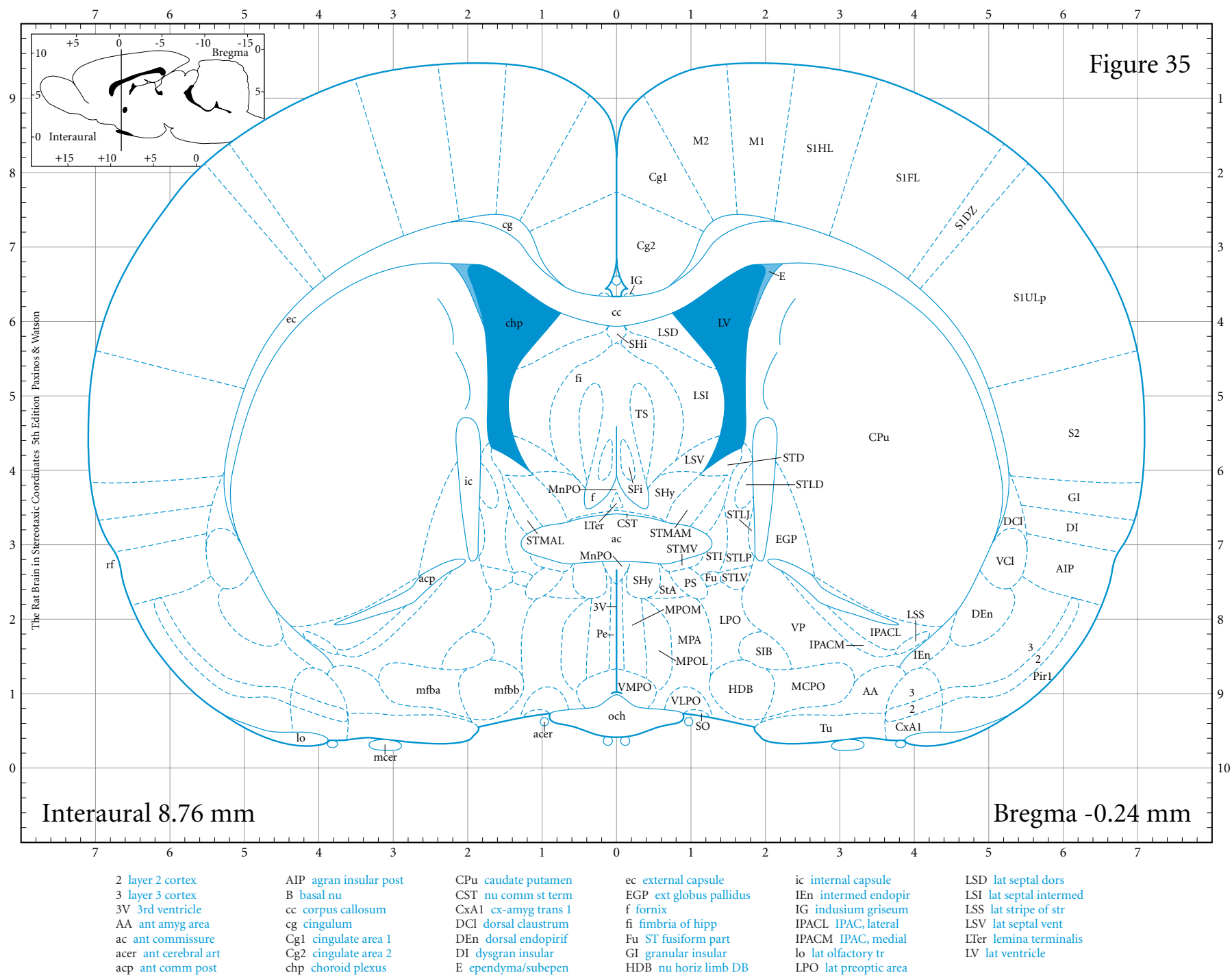
2 layer 2 cortex	cc corpus callosum	ec external capsule	lo lat olfactory tr	mcer mid cerebral art	PS parastrial nu	SHy septohypothal nu	VMPO ventromed preopt
3 layer 3 cortex	cg cingulum	fi fimbria of hipp	LPO lat preoptic area	MCPO magnocell preopt	rf rhinal fissure	SIB subst innom basal	VOLT vasc org lam term
3V 3rd ventricle	Cg1 cingulate area 1	Fu ST fusiform part	LSD lat septal dors	mfba mfb 'a' component	S1DZ S1 dysgranular zn	STLD STL dorsal	VP ventral pallidum
4 layer 4 cortex	Cg2 cingulate area 2	GI granular insular	LSI lat septal intermed	mfbb mfb 'b' componet	S1FL S1 forelimb region	STLP ST lat div, post	
aca ant comm, ant	CPu caudate putamen	HDB nu horiz limb DB	LSS lat stripe of str	MnPO median preoptic nu	S1HL S1 hindlimb region	STLV ST lat div, vent	
AID ant insular dorsal	DCI dorsal claustrum	ICj islands of Calleja	LSV lat septal vent	MPA med preoptic area	S1ULp S1 upper lip region	STMA ST med div, ant	
AIV ant insular ventral	DEn dorsal endopirif	IEn intermed endopir	LV lat ventricle	MS medial septal nu	S2 2ary somatosens	STMV ST med div, vent	
AVPe anterovent perive	DI dysgran insular	IG indusium griseum	M1 primary motor cx	och optic chiasm	SFi septofimbrial nu	Tu1 olf tub layer 1	
CB cell bridges	E ependyma/subepen	IPAC interstitial nu acp	M2 2ary motor cx	Pir1 piriform layer 1	SHi septohipp nu	VCI ventral claustrum	





2 layer 2 cortex	cc corpus callosum	DI dysgran insular	IG indusium griseum	M1 primary motor cx	Pir1 piriform layer 1	SHi septohipp nu	STMA ST med div, ant
3 layer 3 cortex	cg cingulum	E ependyma/subepen	IPAC interstitial nu acp	M2 2ary motor cx	PS parastrial nu	SHy septohypothal nu	STMAL ST med anterolat
3V 3rd ventricle	Cg1 cingulate area 1	ec external capsule	lo lat olfactory tr	MCPO magnocell preopt	rf rhinal fissure	SIB subst innom basal	STMAM ST med ant med
ac ant commissure	Cg2 cingulate area 2	f fornix	LPO lat preoptic area	mfba mfb 'a' component	S1DZ S1 dysgranular zn	SO supraoptic nu	STMV ST med div, vent
acp ant comm post	chp choroid plexus	Fu ST fusiform part	LSD lat septal dors	mfbb mfb 'b' componet	S1FL S1 forelimb region	StA strial preopt area	Tu1 olf tub layer 1
AIP agran insular post	CPu caudate putamen	GI granular insular	LSI lat septal intermed	MnPO median preoptic nu	S1HL S1 hindlimb region	STLD STL dorsal	VCl ventral claustrum
Al alar nu	CxA1 cx-amyg trans 1	HDB nu horiz limb DB	LSS lat stripe of str	MPA med preoptic area	S1ULp S1 upper lip region	STLJ STL juxtacaps	VLPO ventrolat preoptic
AVPe anterovent perive	DCI dorsal claustrum	ic internal capsule	LSV lat septal vent	MPOL medial preopt lat	S2 2ary somatosens	STLP ST lat div, post	VMPO ventromed preopt
CB cell bridges	DEn dorsal endopirif	IEn intermed endopir	LV lat ventricle	och optic chiasm	SFi septofimbrial nu	STLV ST lat div, vent	VP ventral pallidum





M1 primary motor cx  
M2 2ary motor cx  
mcer mid cerebral art  
MCPO magnocell preopt  
mfba mfb 'a' component  
mfbb mfb 'b' component  
MnPO median preoptic nu

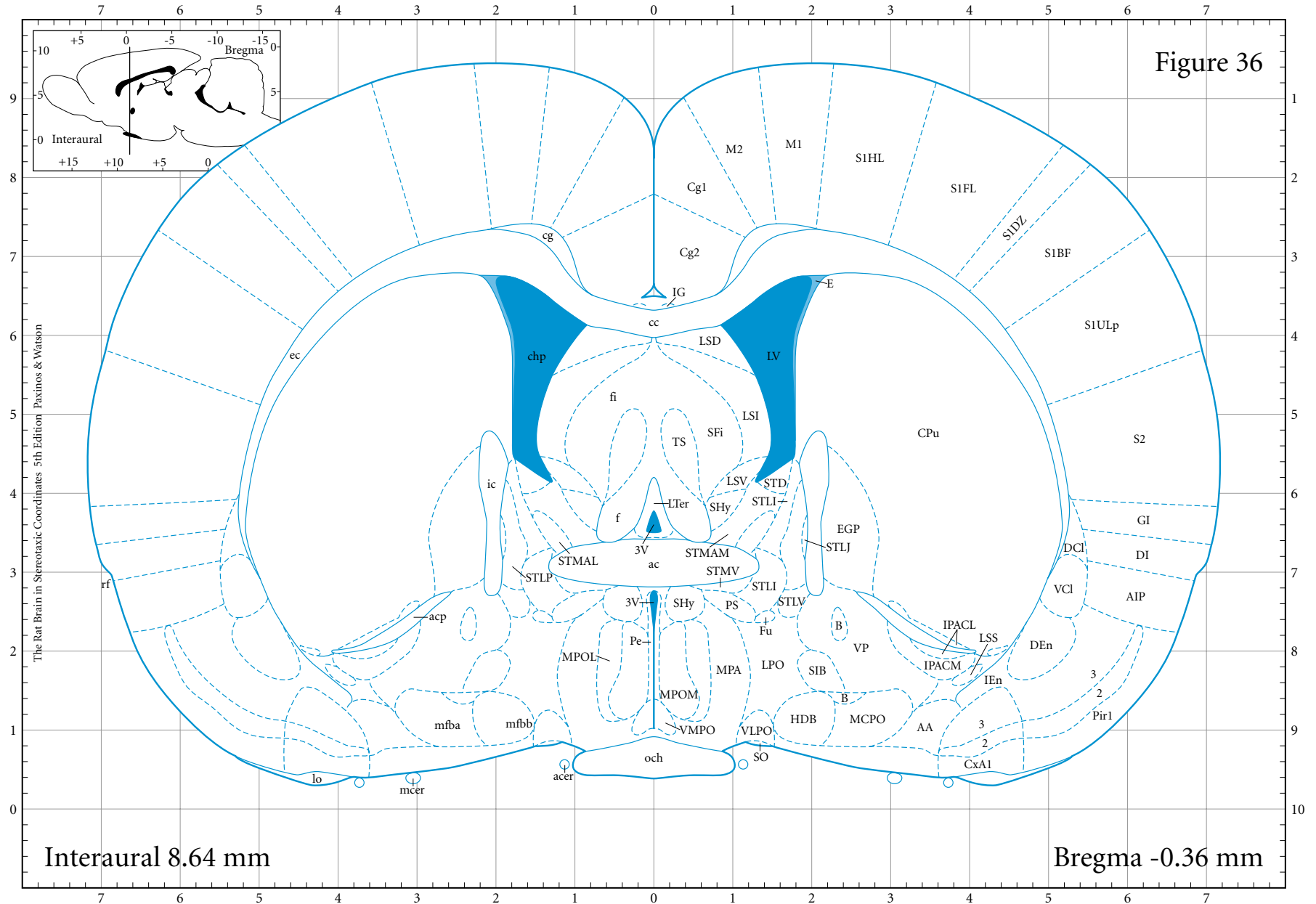
MPA med preoptic area  
MPOL medial preopt lat  
MPOM medial preopt med  
och optic chiasm  
Pe periventric hy nu  
Pir1 piriform layer 1  
PS parastrial nu

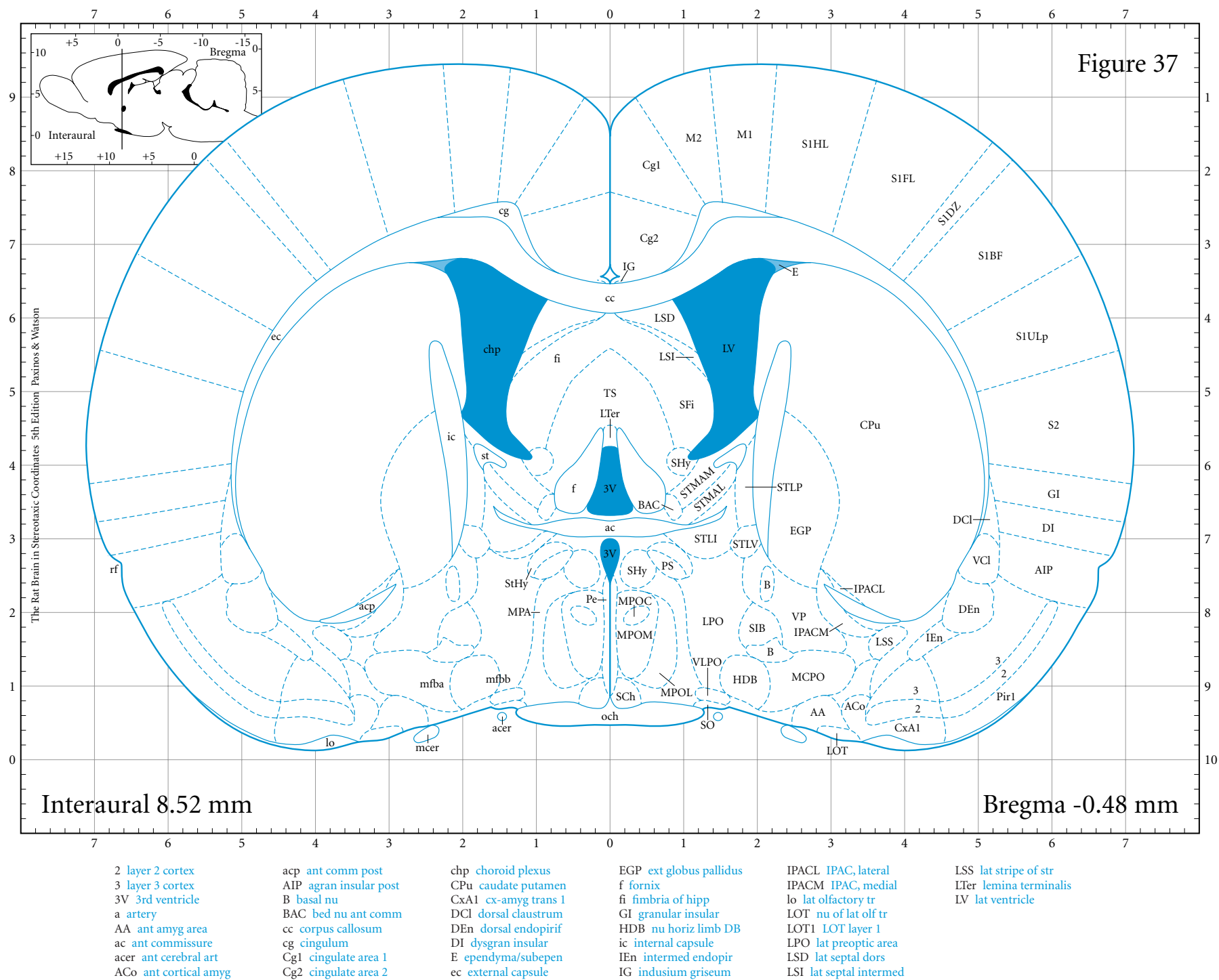
rf rhinal fissure  
S1BF S1 cx, barrel field  
S1DZ S1 dysgranular zn  
S1FL S1 forelimb region  
S1HL S1 hindlimb region  
S1ULp S1 upper lip region  
S2 2ary somatosens

SFi septofimbrial nu  
SHi septohipp nu  
SHy septohypothal nu  
SIB subst innom basal  
SO supraoptic nu  
StA strial preopt area  
STI ST intermediate

STLD STL dorsal  
STLI STL intermediate  
STLJ STL juxtacaps  
STLP ST lat div, post  
STLV ST lat div, vent  
STMAL ST med anterolat  
STMAM ST med ant med

STMV ST med div, vent  
TS triangular septal  
Tu olfactory tubercle  
VCI ventral claustrum  
VLPO ventrolat preoptic  
VMPO ventromed preopt  
VP ventral pallidum







M1 primary motor cx  
M2 2ary motor cx  
mcer mid cerebral art  
mch med corticohyp tr  
MCPO magnocell preopt  
mfba mfb 'a' component  
mfbb mfb 'b' component  
MPA med preoptic area

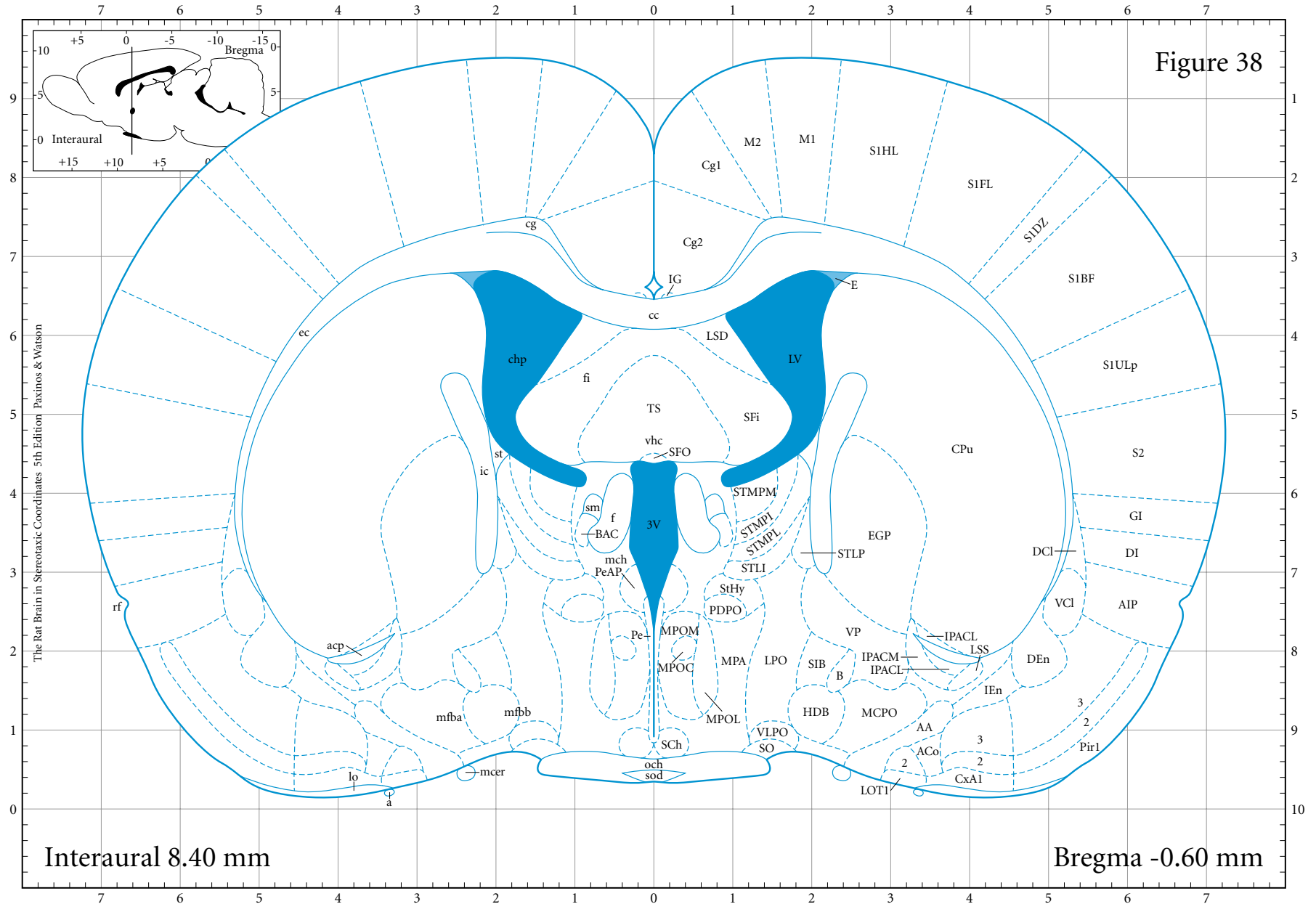
MPOC medial preopt cent  
MPOL medial preopt lat  
MPOM medial preopt med  
och optic chiasm  
PDPO postdors preopt  
Pe periventric hy nu  
PeAP periv ant parvic  
Pir1 piriform layer 1

PS parastrial nu  
rf rhinal fissure  
S1BF S1 cx, barrel field  
S1DZ S1 dysgranular zn  
S1FL S1 forelimb region  
S1HL S1 hindlimb region  
S1ULp S1 upper lip region  
S2 2ary somatosens

SCh suprachiasmatic nu  
SFi septofimbrial nu  
SFO subfornical organ  
SHy septohypothal nu  
SIB subst innom basal  
stria medullaris  
SO supraoptic nu  
sod supraoptic decuss

st stria terminalis  
StHy striohypothal nu  
STLI STL intermediate  
STLP ST lat div, post  
STLV ST lat div, vent  
STMAL ST med anterolat  
STMAM ST med ant med  
STMPI STM postintermed

STMPL STM posterolat  
STMPM STM posteromed  
TS triangular septal  
VCl ventral claustrum  
vhc ventral hipp comm  
VLPO ventrolat preoptic  
VP ventral pallidum







M1 primary motor cx  
M2 2ary motor cx  
mch med cortyho tr  
MCPO magnocell preopt  
mfb med forebr bundle  
mfb a' component  
mfb b' componet  
MPA med preoptic area

MPOC medial preopt cent  
MPOL medial preopt lat  
MPOM medial preopt med  
och optic chiasm  
PaAP Pa ant parvicell  
Pe periventric hy nu  
PeAP periv ant parvic  
Pir1 piriform layer 1

PVA paraventric th ant  
rf rhinal fissure  
SChDL suprach dorsolat  
SChVM suprach ventromed  
S1BF S1 cx, barrel field  
S1DZ S1 dysgranular zn  
S1FL S1 forelimb region  
S1HL S1 hindlimb region

S1ULp S1 upper lip region  
S2 2ary somatosens  
SFi septofimbrial nu  
SFO subfornical organ  
SIB subst innom basal  
sm stria medullaris  
SO supraoptic nu  
sod supraoptic decussn

st stria terminalis  
StHy striohypothal nu  
STLP ST lat div, post  
STMPI STM postintermed  
STMPL STM posterolat  
STMPM STM posteromed  
TS triangular septal  
VCI ventral claustrum

VEN ventral endopir  
vhc ventral hipp comm  
VLH ventrolat hy nu  
VP ventral pallidum

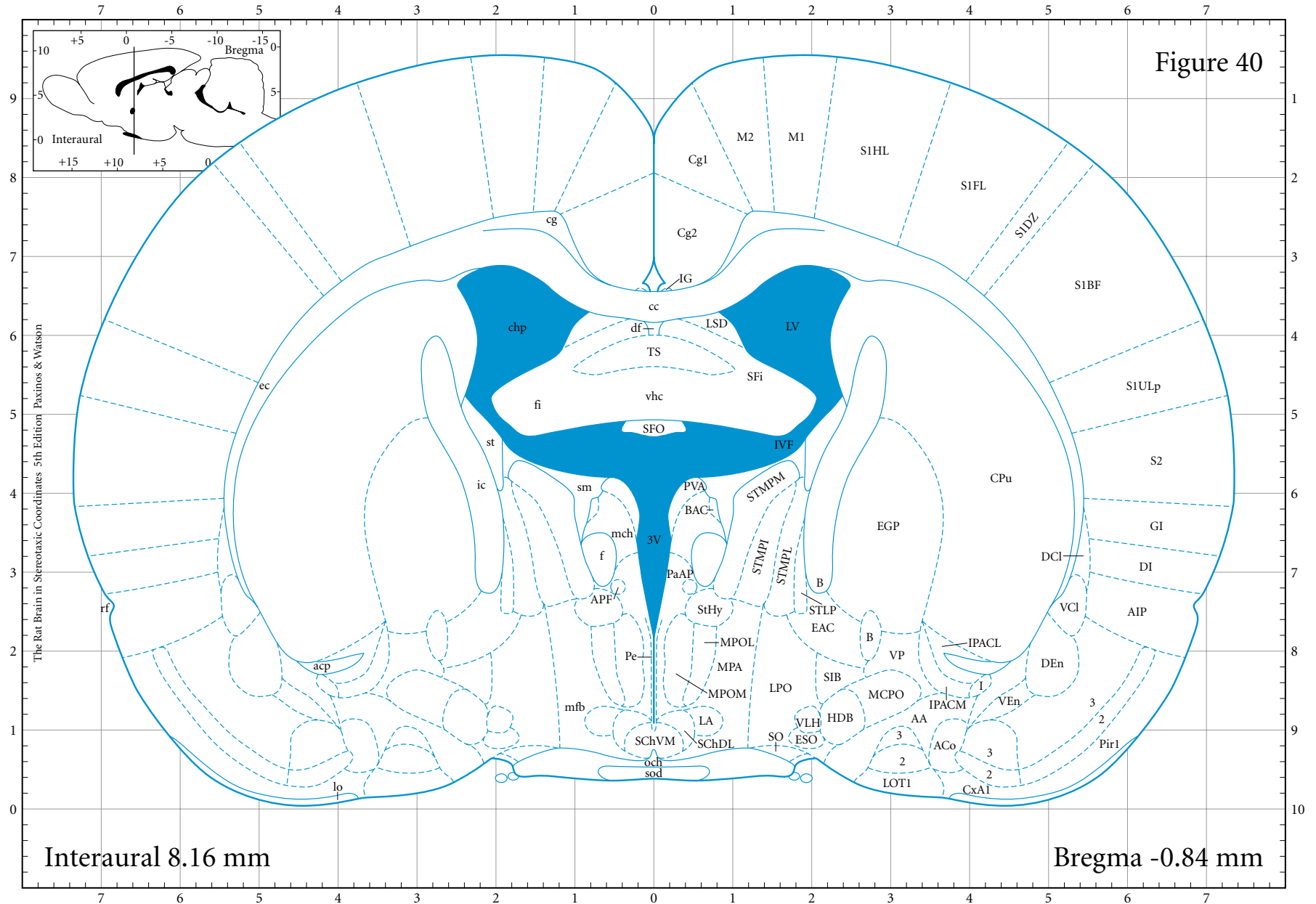
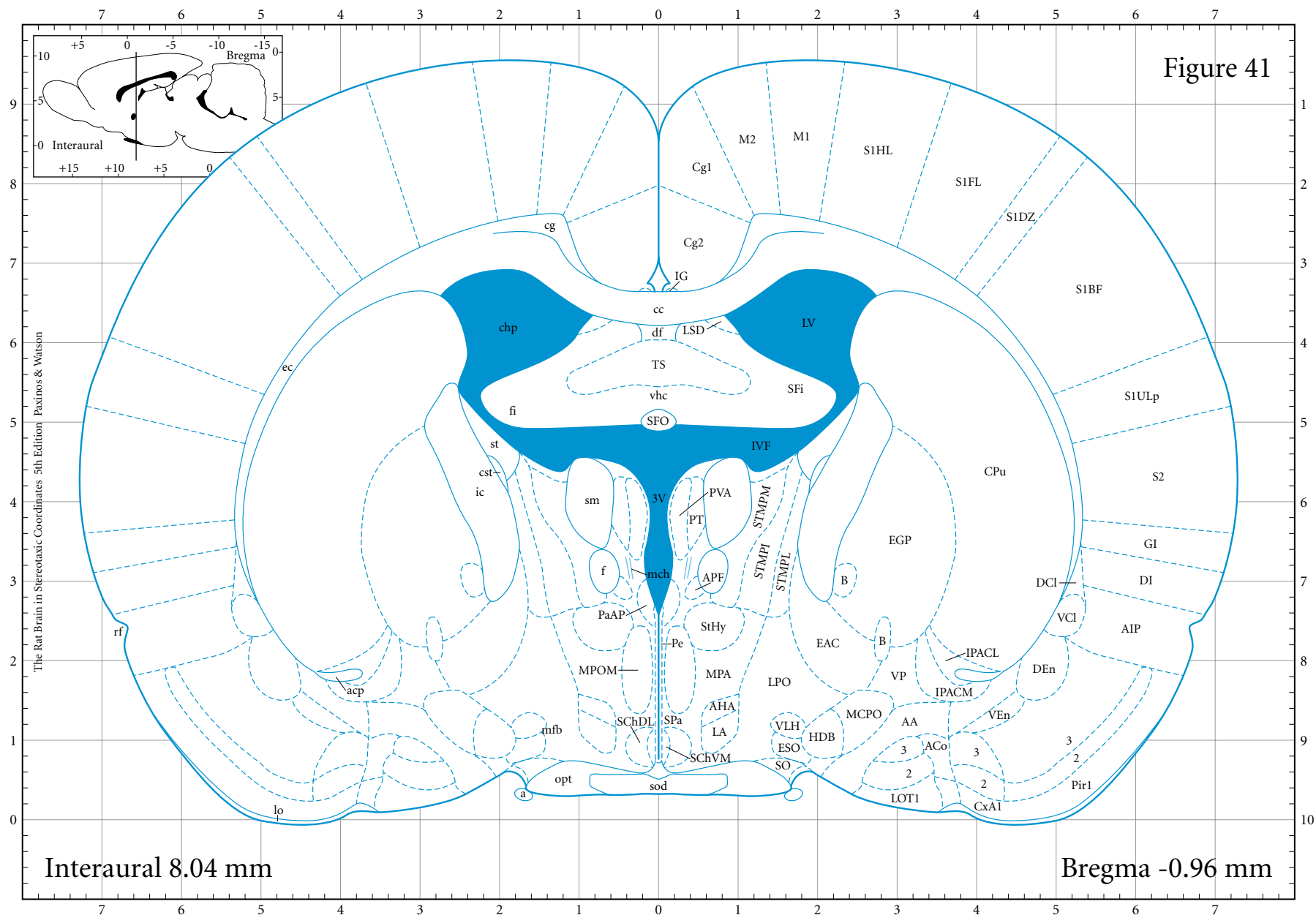


Figure 41



2 layer 2 cortex  
3 layer 3 cortex  
3V 3rd ventricle  
a artery  
AA ant amygd area  
ACo ant cortical amygd  
acp ant comm post  
AHA ant hypothal ant

AIP agran insular post  
AM anteromed th nu  
APF ant perforian nu  
AV anterovent th nu  
B basal nu  
cc corpus callosum  
cg cingulum  
Cg1 cingulate area 1

Cg2 cingulate area 2  
chp choroid plexus  
CPu caudate putamen  
cst commiss st term  
CxAl cx-amygd trans 1  
D3V dorsal 3rd vent  
DCI dorsal claustrum  
DEn dorsal endopirif

df dorsal fornix  
DI dysgran insular  
EAC sublentice EA cent  
ec external capsule  
EGP ext globus pallidus  
ESO episupraoptic nu  
f fornix  
fi fimbria of hipp

GI granular insular  
HDB nu horiz limb DB  
I intercalated nu  
ic internal capsule  
IG indusium griseum  
IPACL IPAC, lateral  
IPACM IPAC, medial  
IVF interventric for

LA lateroant hy nu  
lo lat olfactory tr  
LOT1 LOT layer 1  
LPO lat preoptic area  
LSD lat septal dors  
LV lat ventricle

M1 primary motor cx  
M2 2ary motor cx  
mch med corticohyp tr  
MCPO magnocell preopt  
MeAD med anterodorsal  
mfb med forebr bundle  
MPA med preoptic area  
MPOM medial preopt med

opt optic tract  
PaAP Pa ant parvicell  
Pe periventric hy nu  
Pir1 piriform layer 1  
PT paratenial th nu  
PVA paraventric th ant  
RCh retrochiasm area  
Re reuniens th nu

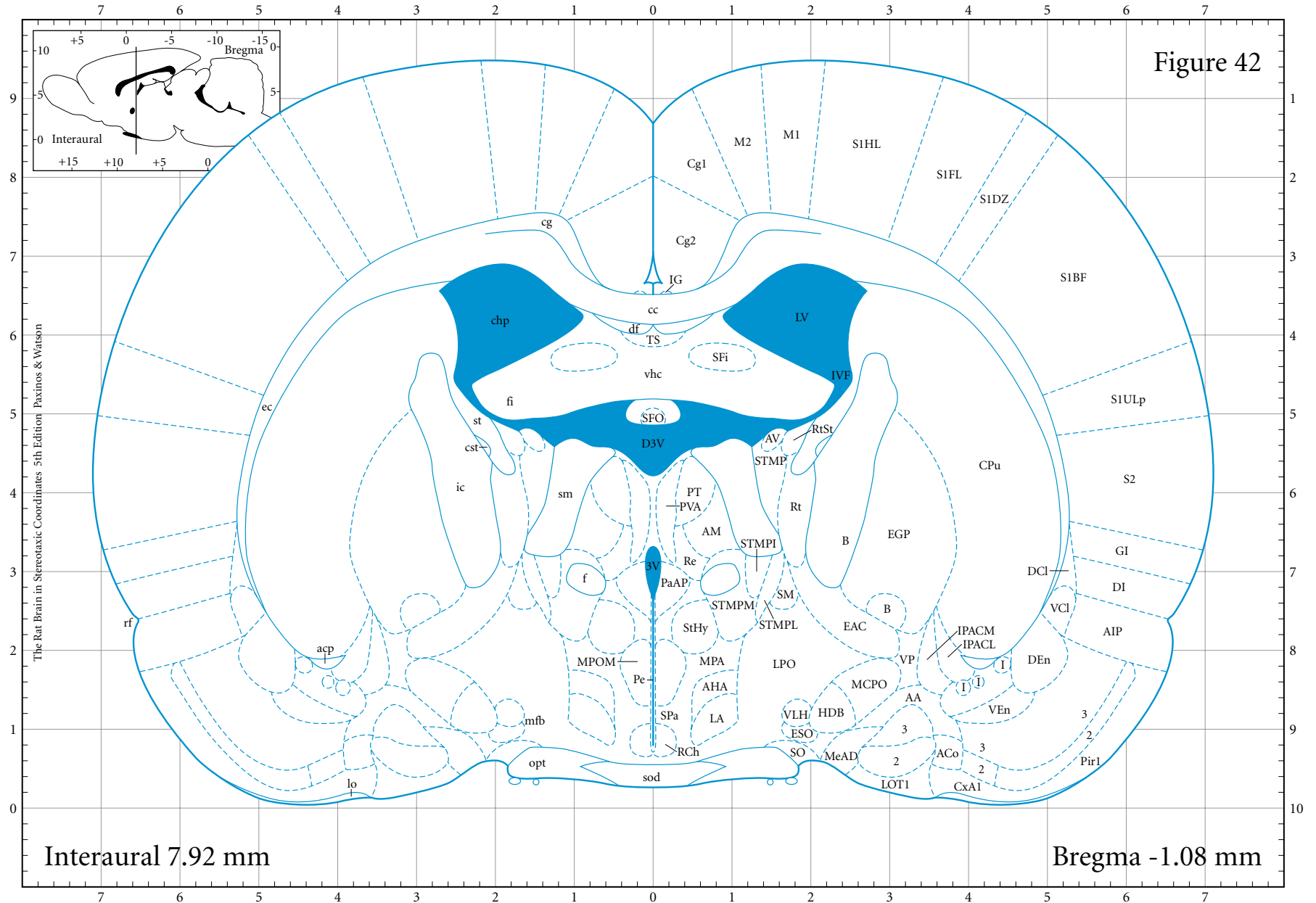
rf rhinal fissure  
Rt reticular th nu  
RtSt reticulostriatal nu  
S1BF S1 cx, barrel field  
S1DZ S1 dysgranular zn  
S1FL S1 forelimb region  
S1HL S1 hindlimb region  
S1ULp S1 upper lip region

S2 2ary somatosens  
SFi septofimbrial nu  
SFO subfornical organ  
SM nu stria medull  
sm stria medullaris  
SO supraoptic nu  
sod supraoptic decussn  
SPa subparaventric zn

st stria terminalis  
StHy striohypothal nu  
STMP ST med div, post  
STMPI STM postintermed  
STMPL STM posterolat  
STMPLM STM posteromed  
TS triangular septal  
VCI ventral claustrum

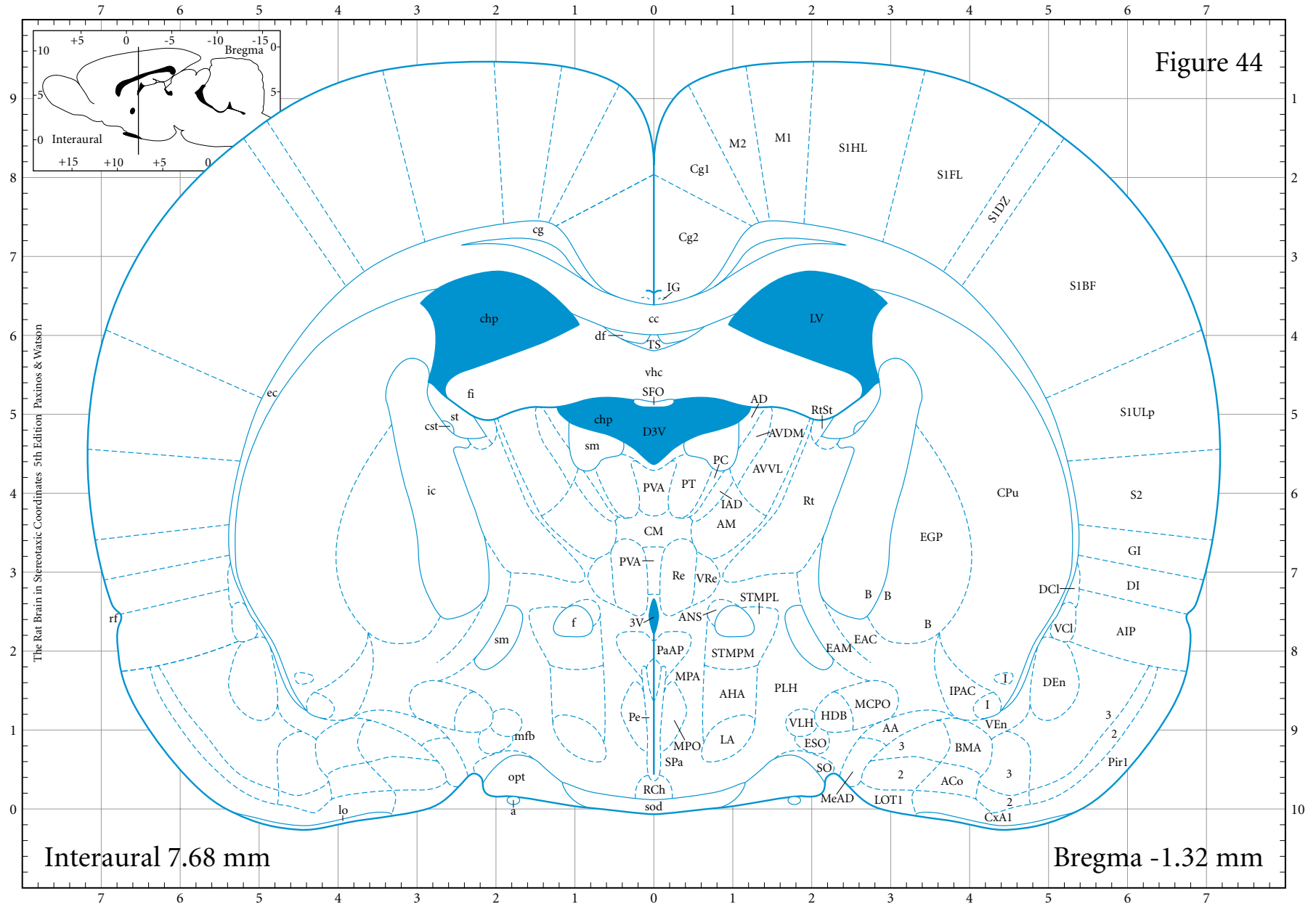
VEn ventral endopir  
vhc ventral hipp comm  
VLH ventrolat hy nu  
VP ventral pallidum

Figure 42





TS triangular septal  
VCl ventral claustrum  
VEn ventral endopir  
vhc ventral hipp comm  
VLH ventrolat hy nu  
VRe vent reuniens nu







M1 primary motor cx  
M2 2ary motor cx  
MCPO magnocell preopt  
MeAD med anterodorsal  
mfb med forebr bundle  
MoDG molecular dent gy  
opt optic tract  
PaMM Pa med magno  
PaMP Pa med parvicell

PaV Pa, ventral part  
PaXi paraxiphoid nu  
PC paracentral th nu  
Pe periventric hy nu  
Pir1 piriform layer 1  
PLH peduncular lat hy  
PT paratenial th nu  
PV paraventric th nu  
PVA paraventric th ant

RCh retrochiasm area  
RChL retrochiasm lat  
Re reunies th nu  
rf rhinal fissure  
Rt reticular th nu  
RtSt reticulostriat nu  
S1BF S1 cx, barrel field  
S1DZ S1 dysgranular zn  
S1FL S1 forelimb region

S1HL S1 hindlimb region  
S1Sh S1 shoulder region  
S1ULp S1 upper lip region  
S2 2ary somatosens  
SFO subfornical organ  
SM nu stria medull  
sm stria medullaris  
SO supraoptic nu  
sod supraoptic decussn

SPa subparaventric zn  
st stria terminalis  
STMPM STM posteromed  
STSL ST supracaps lat  
STSM ST supracaps med  
TS triangular septal  
TuLH tuberal lat hy  
VA ventral ant th nu  
VCl ventral claustrum

VEN ventral endopir  
vhc ventral hipp comm  
VLH ventrolat hy nu  
VRe vent reunies nu  
Xi xiphoid th nu

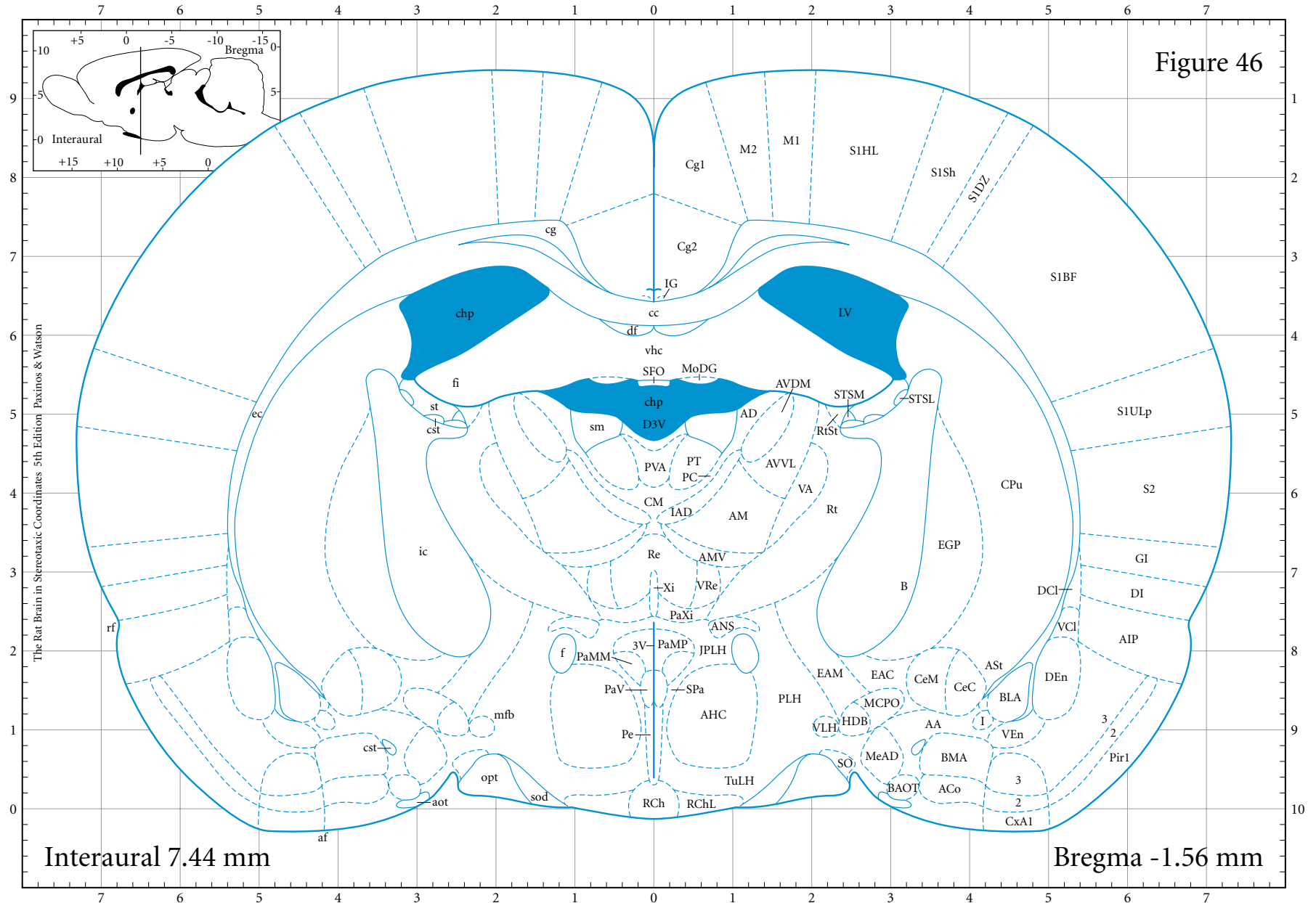
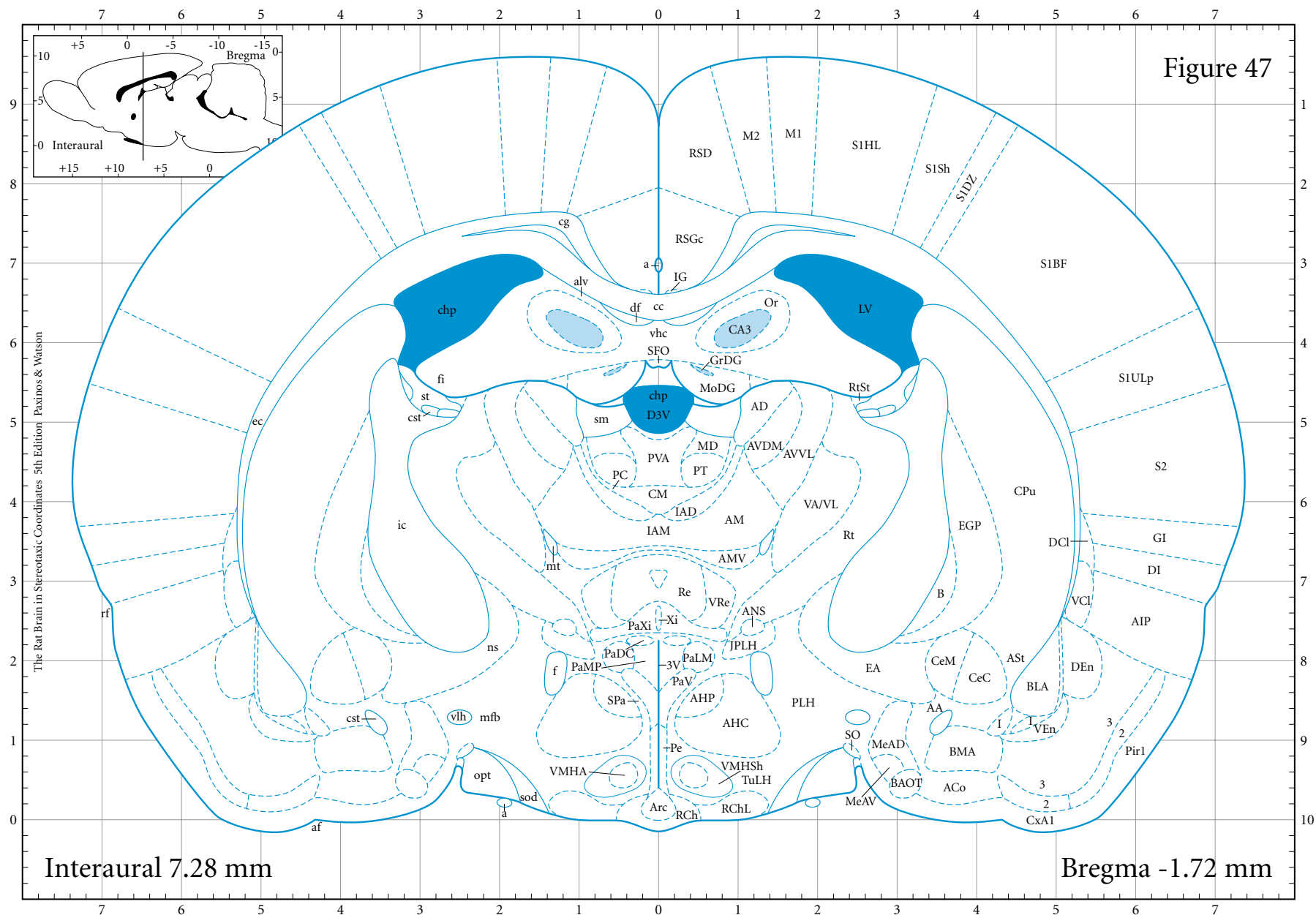




Figure 47



2 layer 2 cortex  
3 layer 3 cortex  
3V 3rd ventricle  
a artery  
AA ant amygd area  
ACo ant cortical amygd  
AD anterodors th nu  
af amygdal fissure  
AHC ant hypothal cent

AHP ant hypothal post  
AIP agran insular post  
alv alveus of hipp  
AM anteromed th nu  
AMV anteromed th vent  
ANS acc neurosecret  
Arc arcuate hy nu  
AST amygdalostr trans  
AVDM AV th dorsomed

AVVL AV th ventrolat  
B basal nu  
BAOT bed nu acc olf tr  
BLA basolat amygd ant  
BMA basomed amygd ant  
CA3 field CA3 hipp  
cc corpus callosum  
CeC central amygd caps  
CeM central amygd med

cg cingulum  
chp choroid plexus  
CM centr med th nu  
CPu caudate putamen  
cst commiss st term  
CxA1 cx-amygd trans 1  
D3V dorsal 3rd vent  
DCI dorsal claustrum  
DEn dorsal endopirif

df dorsal fornix  
DI dysgran insular  
EA sublentice ext am  
ec external capsule  
EGP ext globus pallidus  
f fornix  
fi fimbria of hipp  
GI granular insular  
GrDG granular dent gy

I intercalated nu  
IAD interanterodors nu  
IAM interanteromed nu  
ic internal capsule  
IG indusium griseum  
JPLH juxtaparav lat hy  
LDVL LD ventrolat  
LV lat ventricle

M1 primary motor cx  
M2 2ary motor cx  
MD mediadorsal th nu  
ME median eminence  
MeAD med anterodorsal  
MeAV med anterovent  
mfb med forebr bundle  
MHb med habenular nu

MoDG molecular dent gy  
mt mamillothal tr  
ns nigrostriat bundle  
opt optic tract  
Or oriens layer hipp  
PaDC Pa, dorsal cap  
PaLM Pa lat magnocell  
PaMP Pa med parvicell

PaV Pa, ventral part  
PaXi paraxipoid nu  
PC paracentral th nu  
Pe periventric hy nu  
Pir1 piriform layer 1  
PLH peduncular lat hy  
PT paratenial th nu  
PVA paraventric th ant

Py pyramidal cells  
RCh retrochiasm area  
RChL retrochiasm lat  
Re reuniens th nu  
rf rhinal fissure  
Rh rhomboid thal nu  
RSD retrosple dysgran  
RSGc RSG, c region

Rt reticular th nu  
RtSt reticulostriat nu  
S1BF S1 cx, barrel field  
S1DZ S1 dysgranular zn  
S1HL S1 hindlimb region  
S1Sh S1 shoulder region  
S1ULp S1 upper lip region  
S2 2ary somatosens

SFO subfornical organ  
sm stria medullaris  
SO supraoptic nu  
sod supraoptic decussn  
SPa subparaventric zn  
st stria terminalis  
TuLH tuberal lat hy  
VA ventral ant th nu

VA/VL VA and VL  
VCl ventral claustrum  
VEn ventral endopir  
vhc ventral hipp comm  
VL ventrolat th nu  
vlh vent lat hy tr  
VM ventromed nu  
VMH ventromed hy nu

VMHA VMH, anterior  
VMHSh VMH shell  
VRe vent reunions nu  
Xi xipoid th nu

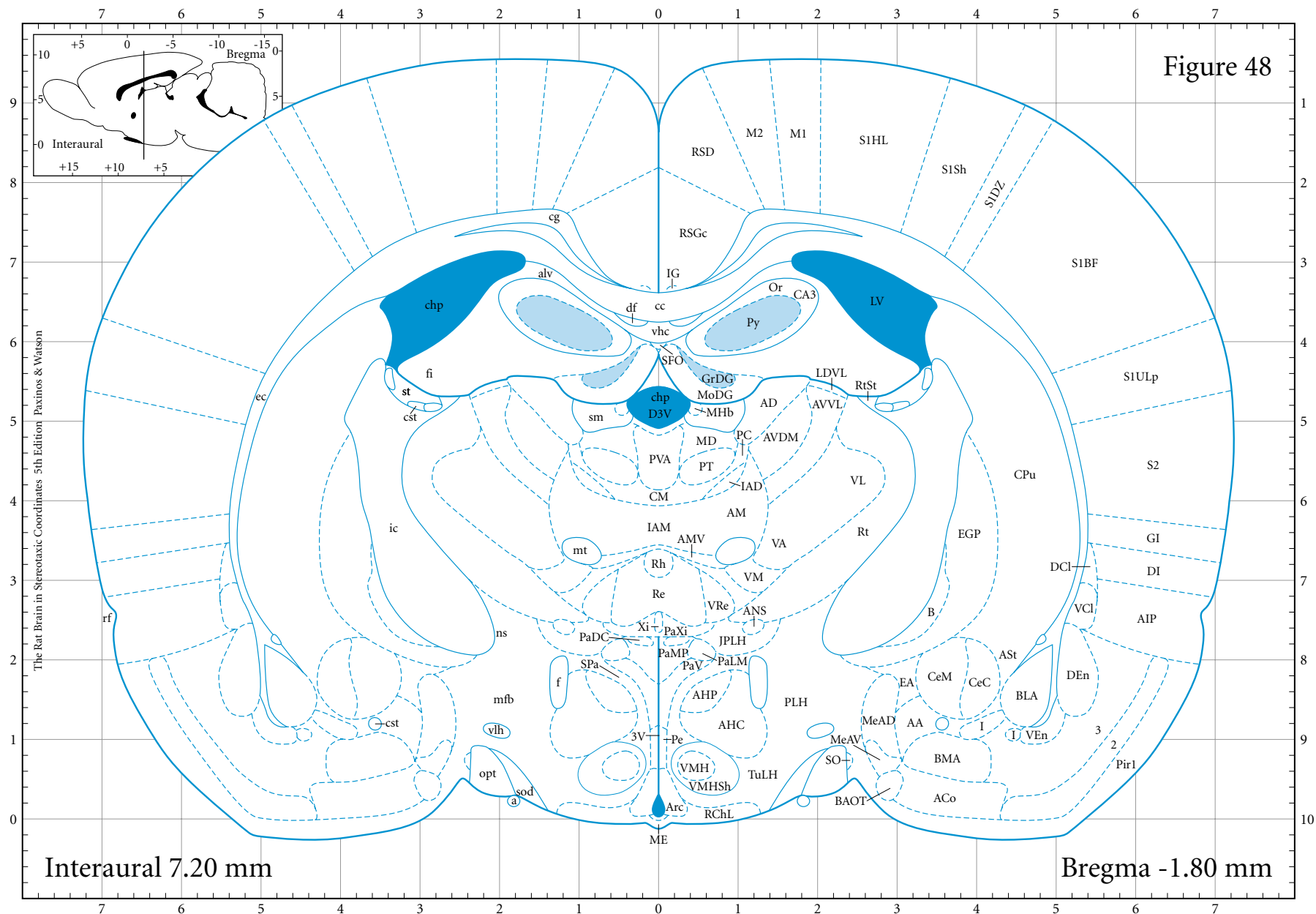
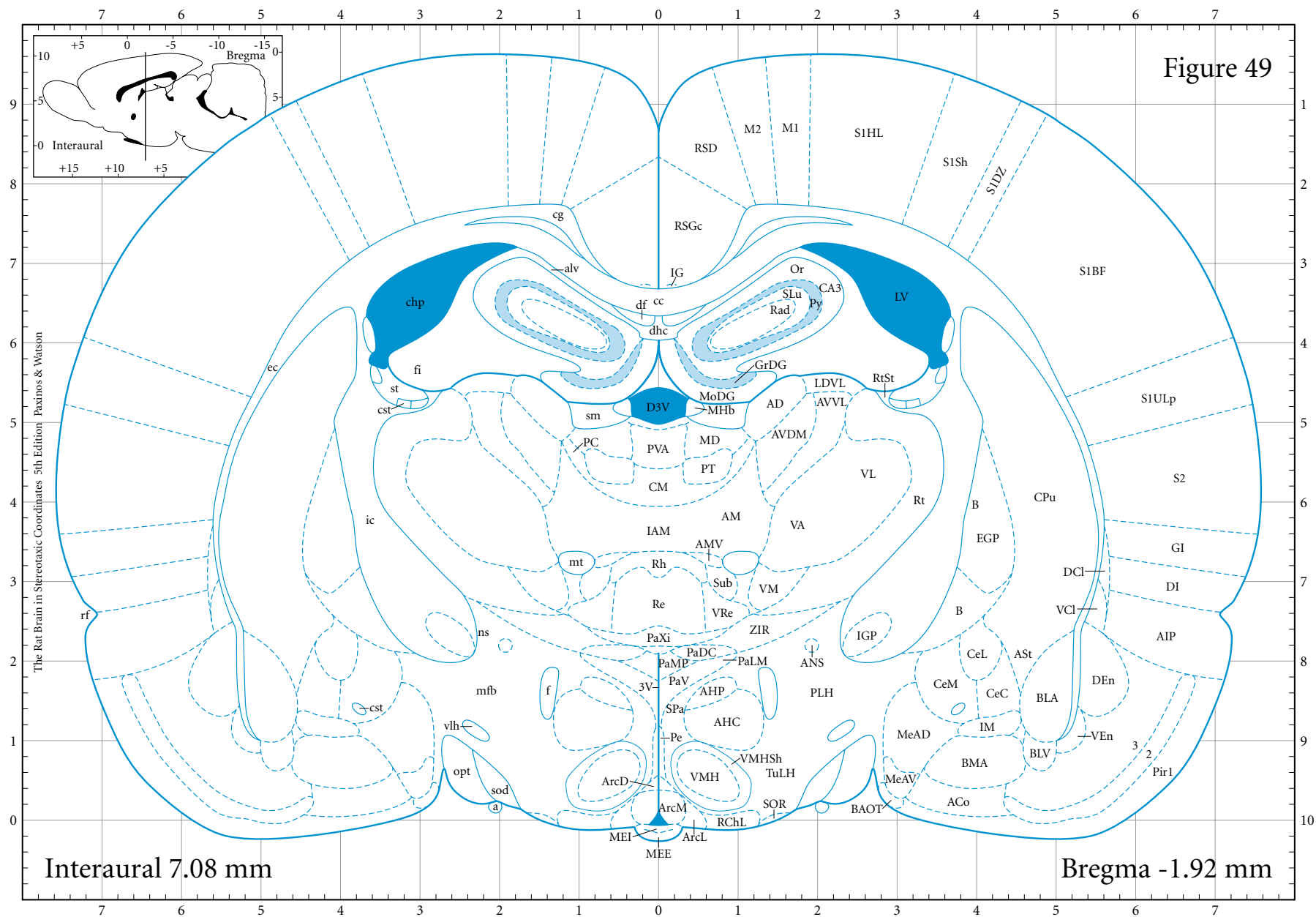


Figure 49



2 layer 2 cortex	af amygdal fissure	ANS acc neurosecret	B basal nu	CeC central amyg caps	cst commiss st term	ec external capsule	ic internal capsule
3 layer 3 cortex	AHC ant hypothal cent	ArcD arcuate hy dors	BAOT bed nu acc olf tr	CeL central amyg lat	D3V dorsal 3rd vent	EGP ext globus pallidus	IG indusium griseum
3V 3rd ventricle	AHP ant hypothal post	ArcL arcuate hy lat	BLA basolat amyg ant	CeM central amyg med	DCI dorsal claustrum	f fornix	IGP int globus pallidus
a artery	AIP agran insular post	ArcM arcuate hy med	BLV basolat amyg vent	cg cingulum	DEn dorsal endopirif	fi fimbria of hipp	IM main intercalated
A13 A13 dopamine	alv alveus of hipp	AST amygdalostr trans	BMA basomed amyg ant	chp choroid plexus	df dorsal fornix	GI granular insular	LaDL lat amyg dorsolat
ACo ant cortical amyg	AM anteromed th nu	AVDM AV th dorsomed	CA3 field CA3 hipp	CM cent med th nu	dhc dorsal hipp comm	GrDG granular dent gy	LDDM LD dorsomed
AD anterodors th nu	AMV anteromed th vent	AVVL AV th ventrolat	cc corpus callosum	CPu caudate putamen	DI dysgran insular	IAM interanteromed nu	LDV lat ventricle

VRe vent reuniens nu  
ZIR zona incerta rost

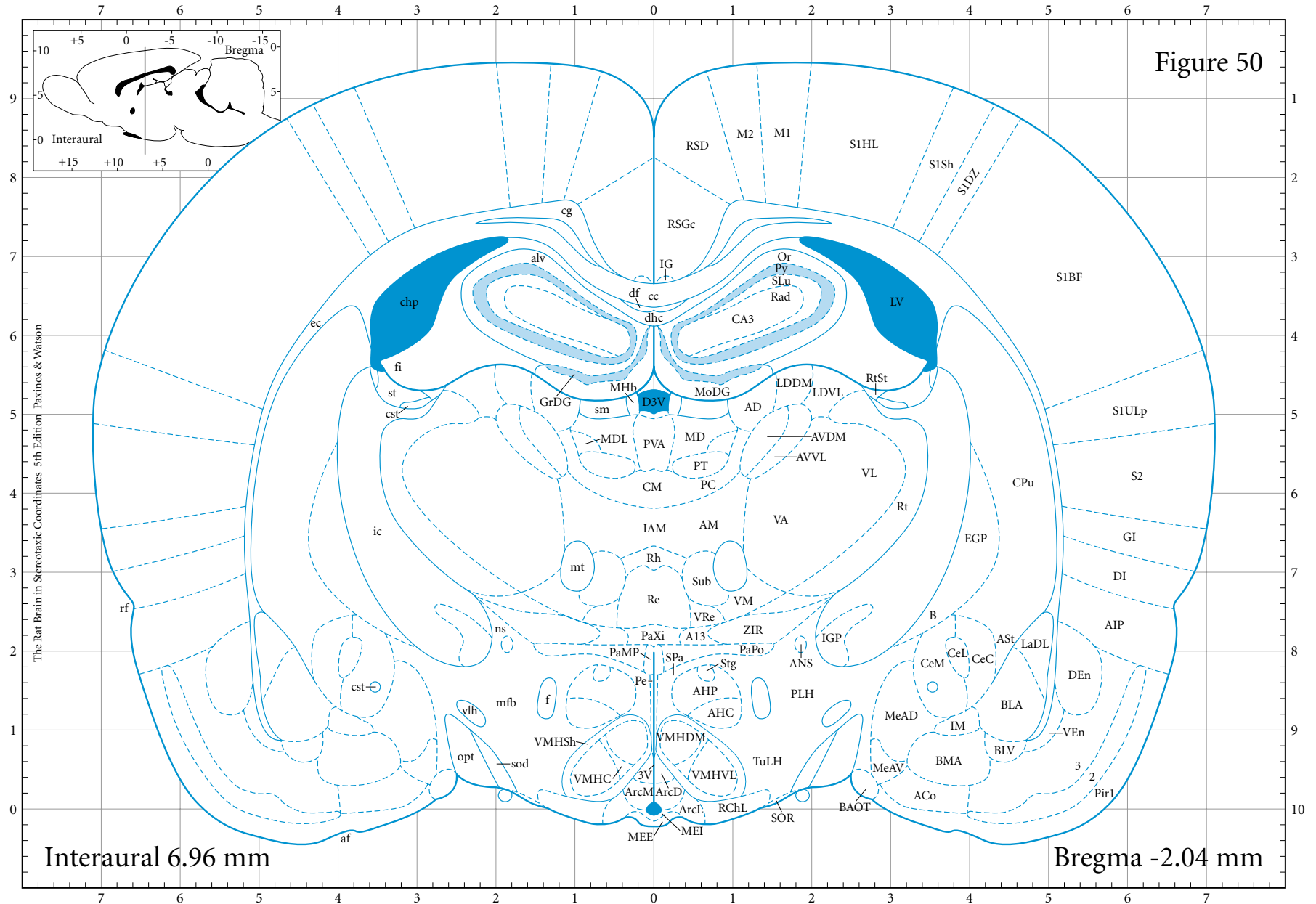
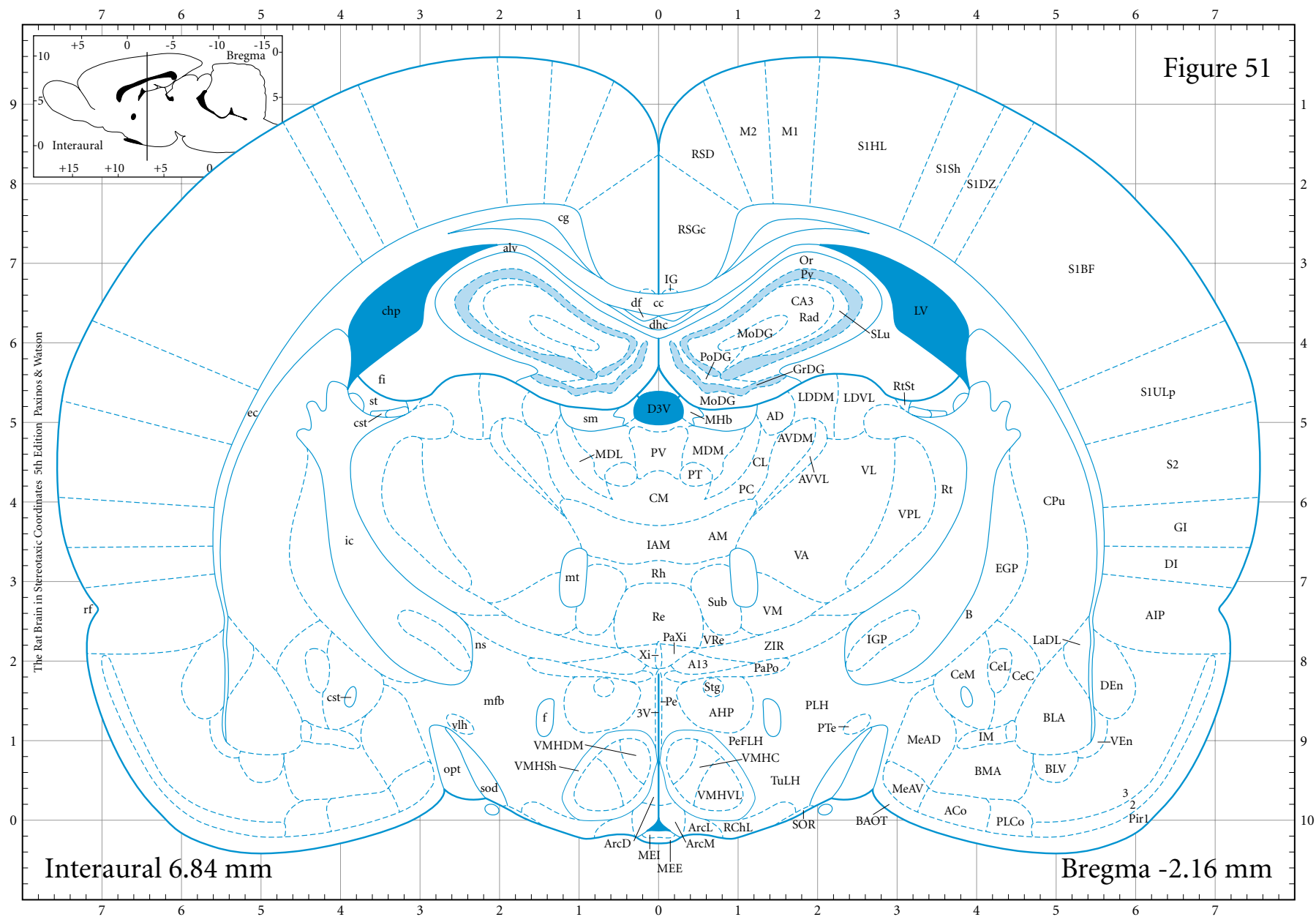


Figure 51



- |                    |                        |                      |                        |                       |                         |                       |                         |
|--------------------|------------------------|----------------------|------------------------|-----------------------|-------------------------|-----------------------|-------------------------|
| 1 layer 1 cortex   | 6a layer 6a cortex     | alv alveus of hipp   | BAOT bed nu acc olf tr | CeC central amyg caps | cst commiss st term     | ec external capsule   | ic internal capsule     |
| 2 layer 2 cortex   | 6b layer 6b cortex     | AM anteromed th nu   | BLA basolat amyg ant   | CeL central amyg lat  | EGP ext globus pallidus | IG indusium griseum   | IGP int globus pallidus |
| 3 layer 3 cortex   | a artery               | ArcD arcuate hy dors | BLV basolat amyg vent  | CeM central amyg med  | DA dorsal hy area       | f fornix              | IM main intercalated    |
| 3V 3rd ventricle   | A13 A13 dopamine       | ArcL arcuate hy lat  | BMA basomed amyg ant   | cg cingulum           | DEn dorsal endopirif    | fi fimbria of hipp    | LaDL lat amygd dorsolat |
| 4 layer 4 cortex   | ACo ant cortical amyg  | ArcM arcuate hy med  | CA1 field CA1 hipp     | chp choroid plexus    | dhc dorsal hipp comm    | GI granular insular   | LDDM LD dorsomed        |
| 5 layer 5 cortex   | AD anterodors th nu    | AVDM AV th dorsomed  | CA2 field CA2 hipp     | CL central th nu      | DI dysgran insular      | GrDG granular dent gy | LDVLD LD ventrolat      |
| 5a layer 5a cortex | AHP ant hypothal post  | AVVL AV th ventrolat | CA3 field CA3 hipp     | CM centr med th nu    | I intercalated nu       | IAM interanteromed nu | LHb lat habenula nu     |
| 5b layer 5b cortex | AIP agran insular post | B basal nu           | cc corpus callosum     | CPu caudate putamen   | DMD dorsomedial dors    | LV lat ventricle      |                         |

M1 primary motor cx	MHb med habenular nu	Pe periventric hy nu	Py pyramidal cells	RtSt reticulostriat nu	sod supraoptic decussn	VA ventral ant th nu	VPL vent posterolat nu
M2 2ary motor cx	MoDG molecular dent gy	PeFLH perifornical lat hy	Rad radiatum layer	S1BF S1 cx, barrel field	SOR SO retrochiasm	VEn ventral endopir	VRe vent reuniens nu
MDL mediadorsal lat	mt mammillothal tr	Pir1 piriform layer 1	RChL retrochiasm lat	S1DZ S1 dysgranular zn	st stria terminalis	VL ventrolat th nu	Xi xiphoid th nu
MDM mediadorsal med	ns nigrostriat bundle	PLCo postlat cort amyg	Re reuniens th nu	S1HL S1 hindlimb region	Stg stigmoid hy nu	vlh vent lat hy tr	ZIR zona incerta rost
MeAD med anterodorsal	opt optic tract	PLH peduncular lat hy	rf rhinal fissure	S1Sh S1 shoulder region	STIA ST intraamygdal	VM ventromed nu	
MeAV med anterovent	Or oriens layer hipp	PoDG polymorph dent gy	Rh rhomboid thal nu	S1ULp S1 upper lip region	Sub submedius th nu	VMHC VMH, central	
MEE med eminence ext	PaPo Pa, post part	PT paratenial th nu	RSD retrosple dysgran	S2 2ary somatosens	SubD submedius dors	VMHDM VMH, dorsomed	
MEI med eminence int	PaXi paraxiphoid nu	PTe paraterete nu	RSGc RSG, c region	SLu stratum lucidum	SubV submedius vent	VMHSh VMH shell	
mfb med forebr bundle	PC paracentral th nu	PV paraventric th nu	Rt reticular th nu	sm stria medullaris	TuLH tuberal lat hy	VMHVL VMH, ventrolat	

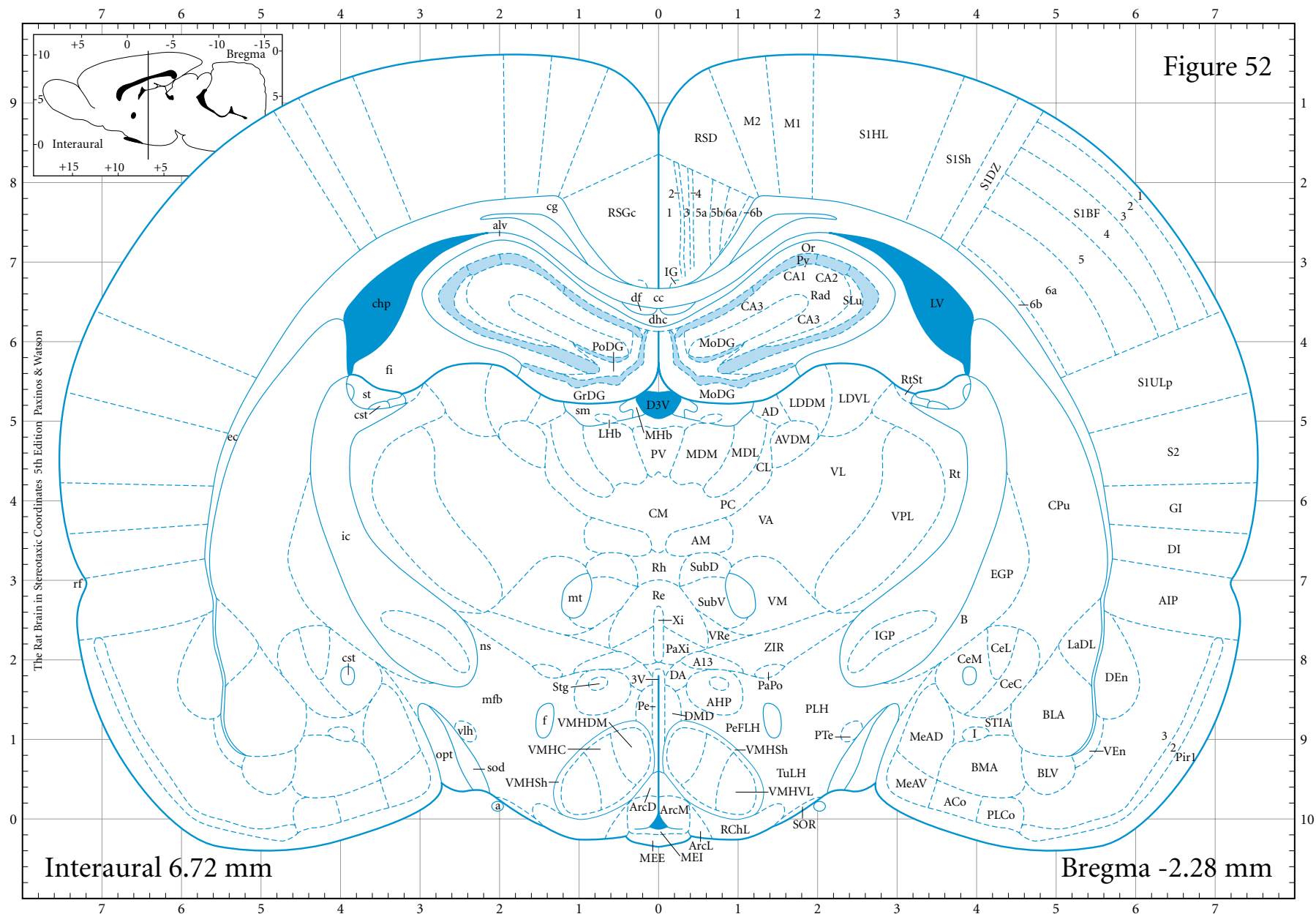
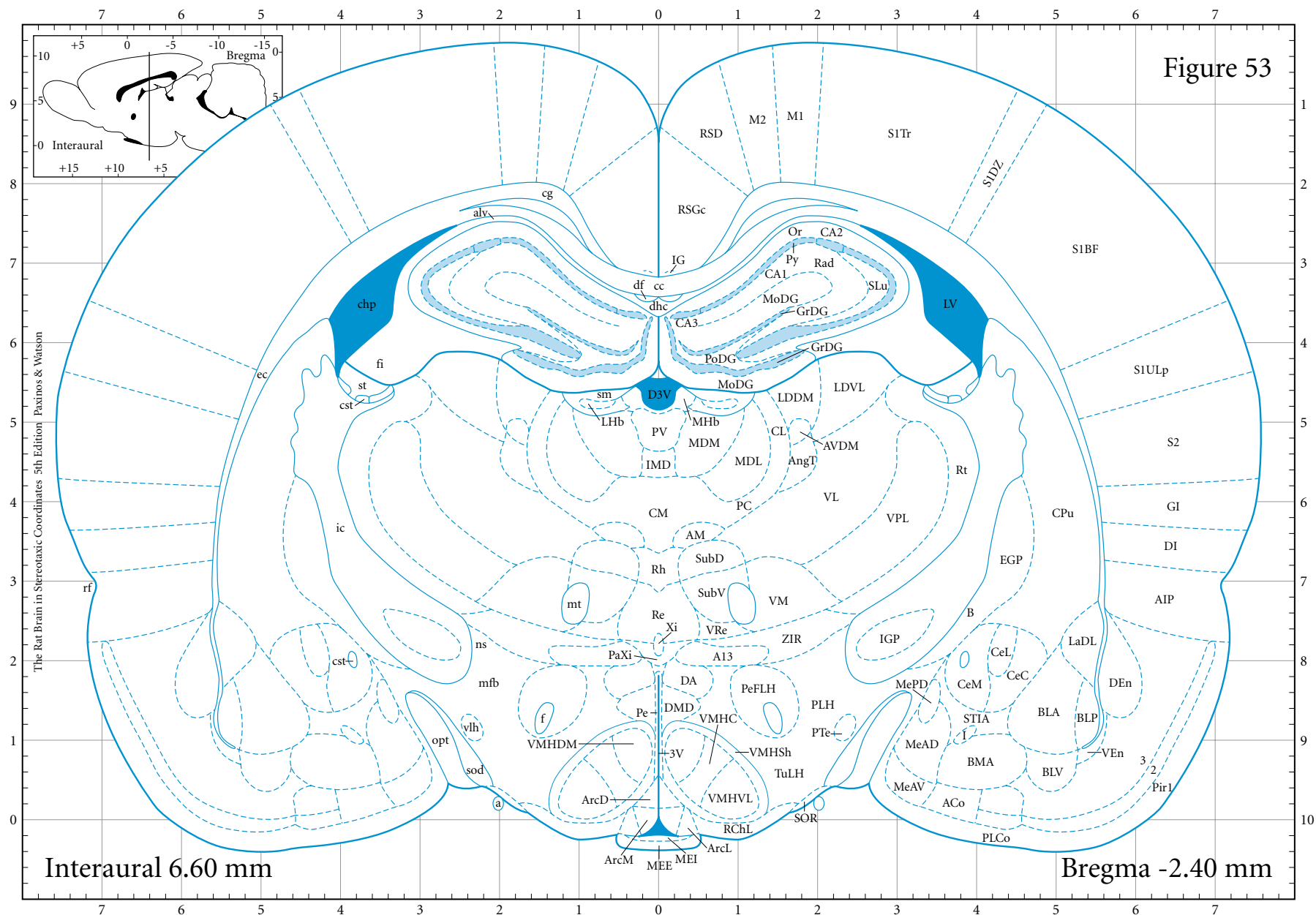




Figure 53



- |                      |                        |                      |                      |                      |                         |                        |                         |
|----------------------|------------------------|----------------------|----------------------|----------------------|-------------------------|------------------------|-------------------------|
| 1 layer 1 cortex     | AIP agran insular post | AVDM AV th dorsomed  | CA2 field CA2 hipp   | CL centrolat th nu   | dhc dorsal hipp comm    | GrDG granular dent gy  | LaDL lat amygd dorsolat |
| 2 layer 2 cortex     | alv alveus of hipp     | B basal nu           | CA3 field CA3 hipp   | CM centr med th nu   | DMD dorsomedial dors    | hif hipp fissure       | LDDM LD dorsomed        |
| 3 layer 3 cortex     | AM anteromed th nu     | BLA basolat amy ant  | cc corpus callosum   | CPu caudate putamen  | ec external capsule     | I intercalated nu      | LDVL LD ventrolat       |
| 3V 3rd ventricle     | AngT angular th nu     | BLP basolat amy post | CeC central amy caps | cst commiss st term  | IG indusium griseum     | ic internal capsule    | LHb lat habenular nu    |
| a artery             | ArcD arcuate hy dors   | BLV basolat amy vent | CeL central amy lat  | D3V dorsal 3rd vent  | EGP ext globus pallidus | IG int globus pallidus | LMol lacunosus molec    |
| A13 A13 dopamine     | ArcL arcuate hy lat    | BMA basomed amy ant  | CeM central amy med  | DA dorsal hy area    | f fornix                | IMD intermediodors nu  | LV lat ventricle        |
| ACo ant cortical amy | ArcM arcuate hy med    | BMP basomed am post  | cg cingulum          | DEn dorsal endopirif | fi fimbria of hipp      | IMG intramedull gray   |                         |
| af amygdal fissure   | ASt amygdalostr trans  | CA1 field CA1 hipp   | chp choroid plexus   | df dorsal fornix     | GI granular insular     |                        |                         |

VRe vent reuniens nu  
Xi xiphoid th nu  
ZI zona incerta  
ZIR zona incerta rost

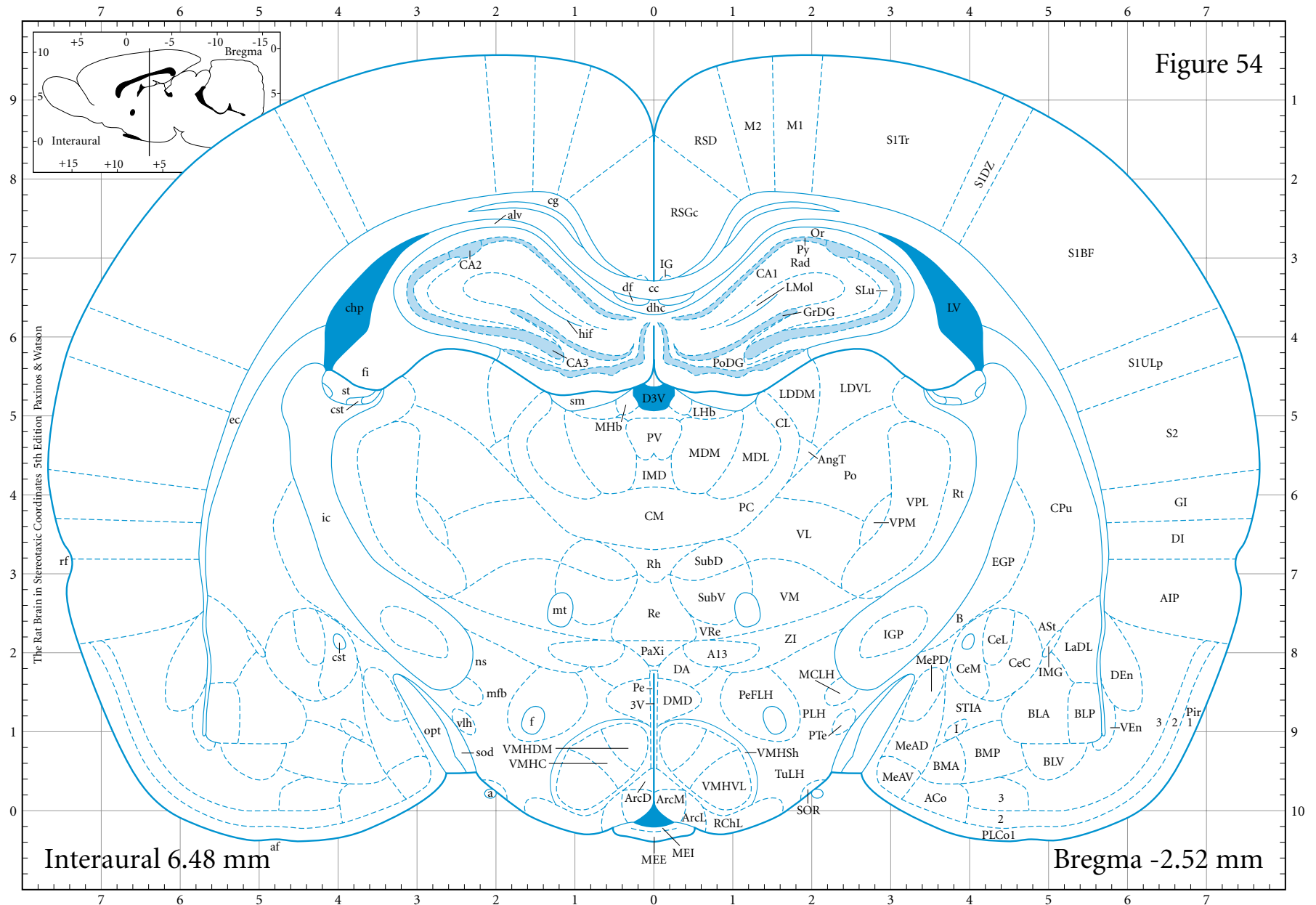
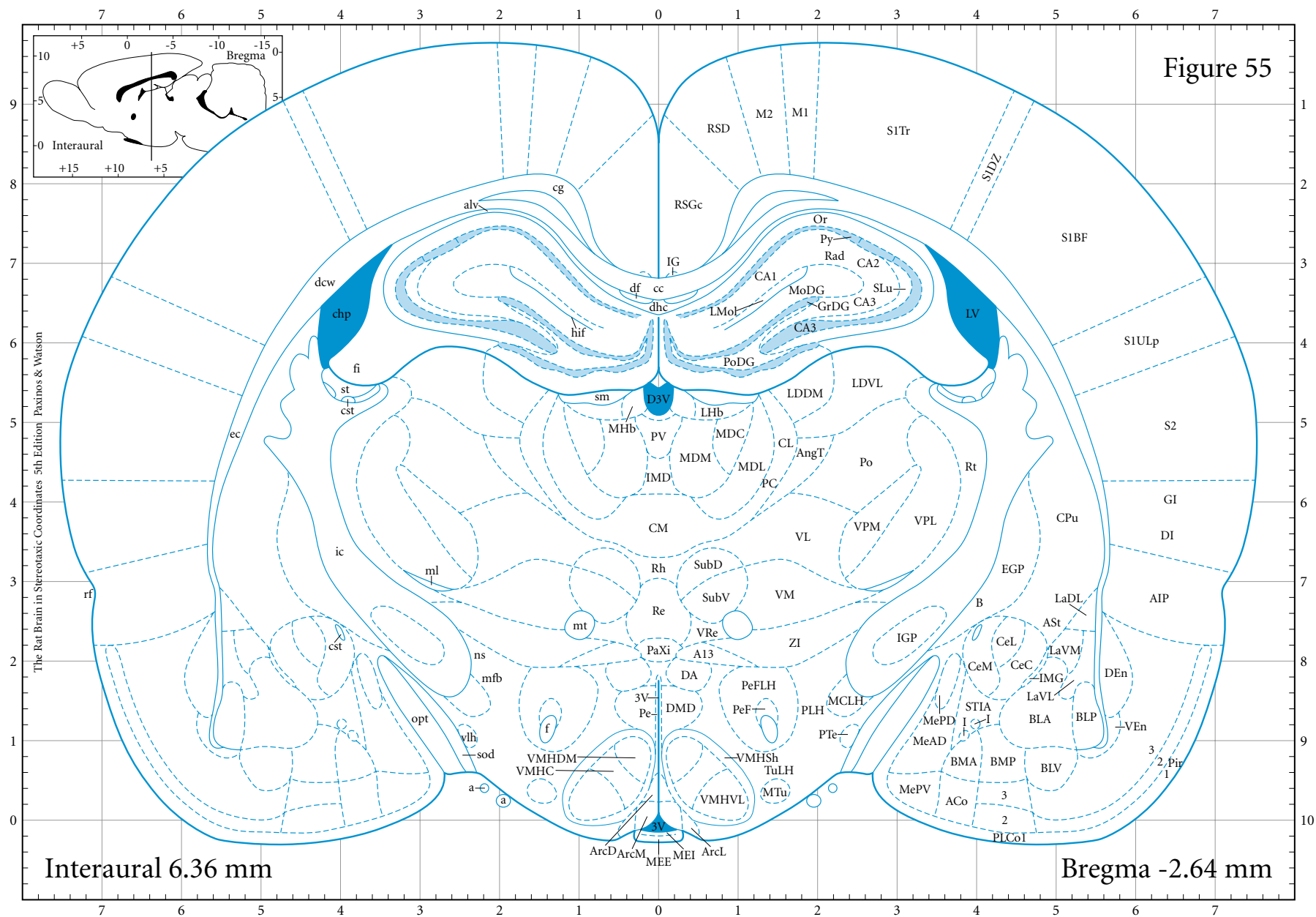




Figure 55



1 layer 1 cortex  
2 layer 2 cortex  
3 layer 3 cortex  
3V 3rd ventricle  
a artery  
A13 A13 dopamine  
ACo ant cortical amy  
AIP agran insular post

alv alveus of hipp  
AngT angular th nu  
ArcD arcuate hy dors  
ArcL arcuate hy lat  
ArcM arcuate hy med  
CA2 field CA2 hipp  
CA3 field CA3 hipp  
cc corpus callosum

BLP basolat amy post  
BLV basolat amy vent  
BMA basomed amy ant  
BMP basomed am post  
CA1 field CA1 hipp  
CA2 field CA2 hipp  
CA3 field CA3 hipp  
cc corpus callosum

CeC central amy caps  
CeL central amy lat  
CeM central amy med  
cg cingulum  
chp choroid plexus  
cl central th nu  
CM centr med th nu  
CPu caudate putamen

cst commiss st term  
D3V dorsal 3rd vent  
DA dorsal hy area  
dcw deep cereb white  
DEn dorsal endopirif  
df dorsal fornix  
dhc dorsal hipp comm  
DI dysgran insular

DMD dorsomedial dors  
ec external capsule  
EGP ext globus pallidus  
f fornix  
fi fimbria of hipp  
GI granular insular  
GrDG granular dent gy  
hif hipp fissure

I intercalated nu  
ic internal capsule  
IG indusium griseum  
IGP int globus pallidus  
IMD intermediodors nu  
IMG intramedull gray  
LaDL lat amy dorsolat  
LaVL lat am ventrolat

LaVM lat am ventromed  
LDDM LD dorsomed  
LDVL LD ventrolat  
LHb lat habenular nu  
LHbL lat habenular lat  
LMol lacunosum molec  
LV lat ventricle

M1 primary motor cx  
 M2 2ary motor cx  
 MCLH magnocell lat hy  
 MDC mediodorsal cent  
 MDL mediodorsal lat  
 MDM mediodorsal med  
 MeAD med anterodorsal  
 MEE med eminence ext  
 MEI med eminence int  
 MePD med posterodors  
 MePV med posterovent  
 mfb med forebr bundle  
 MHb med habenular nu  
 ml medial lemniscus  
 MoDG molecular dent gy  
 mt mammillothal tr  
 MTu medial tuberal nu  
 ns nigrostriat bundle  
 opt optic tract  
 Or oriens layer hipp  
 PaXi paraxiphoind nu  
 PC paracentral th nu  
 Pe periventric hy nu  
 PeF perifornical nu  
 PeFLH perifornical lat hy  
 Pir piriform cx  
 Pir1 piriform layer 1  
 PLCo1 postlat cort am 1  
 PLH peduncular lat hy  
 PMCo postmed cort am  
 Po post thalamic nu  
 PoDG polymorph dent gy  
 PTe paraterete nu  
 PV paraventric th nu  
 Py pyramidal cells  
 Rad radiatum layer  
 Re reuniens th nu  
 rf rhinal fissure  
 Rh rhomboid thal nu  
 RSD retrosple dysgran  
 RSGc RSG, c region  
 Rt reticular th nu  
 S1BF S1 cx, barrel field  
 S1DZ S1 dysgranular zn  
 S1Tr S1 trunk region  
 S1ULp S1 upper lip region  
 S2 2ary somatosens  
 SLu stratum lucidum  
 sm stria medullaris  
 sod supraoptic decussn  
 st stria terminalis  
 STIA ST intraamygdal  
 SubD submedius dors  
 SubI subincertal nu  
 SubV submedius vent  
 TuLH tuberal lat hy  
 VEn ventral endopir  
 VL ventrolat th nu  
 vlh vent lat hy tr  
 VM ventromed nu  
 VMHC VMH, central  
 VMHDM VMH, dorsomed  
 VMHSh VMH shell  
 VMHVL VMH, ventrolat  
 VPL vent posterolat nu  
 VPM vent posteromed  
 VRe vent reuniens nu  
 ZI zona incerta  
 ZID zona incerta does  
 ZIV zona incerta vent

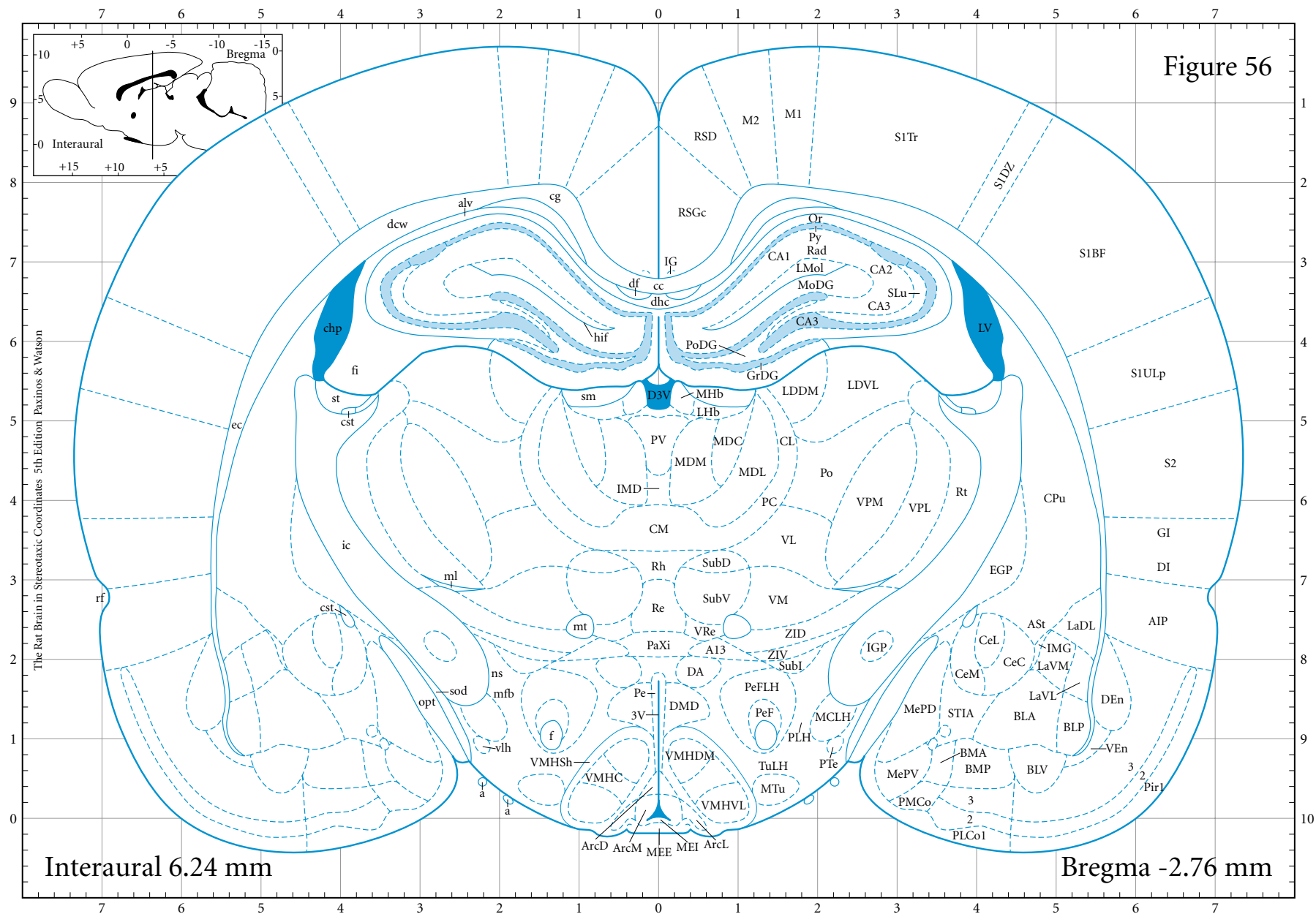
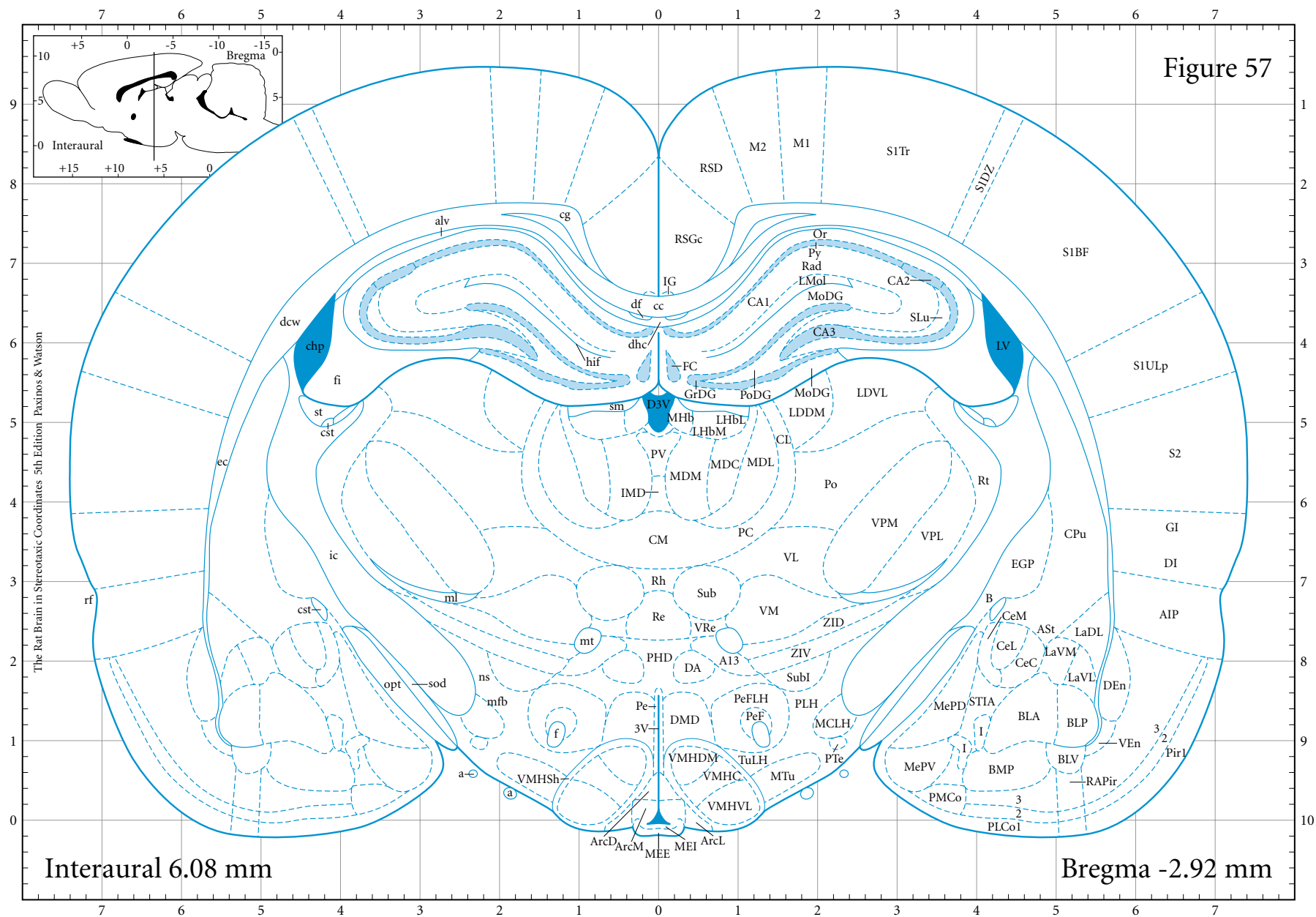


Figure 57



2 layer 2 cortex	ArcL arcuate hy lat	BMP basomed am post	cg cingulum	dcw deep cereb white	ec external capsule	GrDG granular dent gy	LaVM lat am ventromed
3 layer 3 cortex	ArcM arcuate hy med	CA1 field CA1 hipp	chp choroid plexus	DEn dorsal endopirif	Ect ectorhinal cx	hif hipp fissure	LDDM LD dorsomed
3V 3rd ventricle	ASt amygdalostr trans	CA2 field CA2 hipp	CL centrolat th nu	df dorsal fornix	EGP ext globus pallidus	I intercalated nu	LDVL LD ventrolat
a artery	AuD 2ary aud cx, dors	CA3 field CA3 hipp	CM centr med th nu	dhc dorsal hipp comm	f fornix	ic internal capsule	LHbL lat habenular lat
A13 A13 dopamine	B basal nu	cc corpus callosum	CPu caudate putamen	DI dysgran insular	FC fasciola cinereum	IG indusium griseum	LHbM lat habenular med
AIP agran insular post	BLA basolat amy ant	cst commiss st term	DM dorsomedial hy nu	DM dorsomedial dors	fi fimbria of hipp	IG intermediadors nu	LMol lacunosum molec
alv alveus of hipp	BLP basolat amy post	CeC central amy caps	D3V dorsal 3rd vent		fr fasc retroflexus	LaDL lat amygd dorsolat	LV lat ventricle
ArcD arcuate hy dors	BLV basolat amy vent	CeM central amy med	DA dorsal hy area		GI granular insular	LaVL lat am ventrolat	

M1 primary motor cx	MePV med posterovent	Or oriens layer hipp	PMCo postmed cort am	RAPir rost amygdalopir	S1Tr S1 trunk region	Subl subincertal nu	VMHVL VMH, ventrolat
M2 2ary motor cx	mbf med forebr bundle	PC paracentral th nu	Po post thalamic nu	Re reuniens th nu	S1ULp S1 upper lip region	Te terete hypothal nu	VPL vent posterolat nu
MCLH magnocell lat hy	MHb med habenular nu	Pe periventric hy nu	PoDG polymorph dent gy	rf rhinal fissure	S2 2ary somatosens	TuLH tuberal lat hy	VPM vent posteromed
MDC mediodorsal cent	ml medial lemniscus	PeF perifornical nu	PRh perirhinal cx	Rh rhomboid thal nu	SLu stratum lucidum	VEu ventral endopir	VRe vent reuniens nu
MDL mediodorsal lat	MoDG molecular dent gy	PeFLH perifornical lat hy	PTe paraterete nu	RSD retrosple dysgran	sm stria medullaris	VL ventrolat th nu	ZID zona incerta does
MDM mediodorsal med	mt mammillothal tr	PHD post hy area dors	PV paraventric th nu	RSGb RSG, b region	sod supraoptic decussn	VM ventromed nu	ZIV zona incerta vent
MEE med eminence ext	MTu medial tuberal nu	Pir1 piriform layer 1	PVP paraventr th post	Rt reticular th nu	st stria terminalis	VMHC VMH, central	
MEI med eminence int	ns nigrostriat bundle	PLCo1 postlat cort am 1	Py pyramidal cells	S1BF S1 cx, barrel field	STIA ST intraamygdal	VMHDM VMH, dorsomed	
MePD med posterodors	opt optic tract	PLH peduncular lat hy	Rad radiatum layer	S1DZ S1 dysgranular zn	Sub submedius th nu	VMHSh VMH shell	

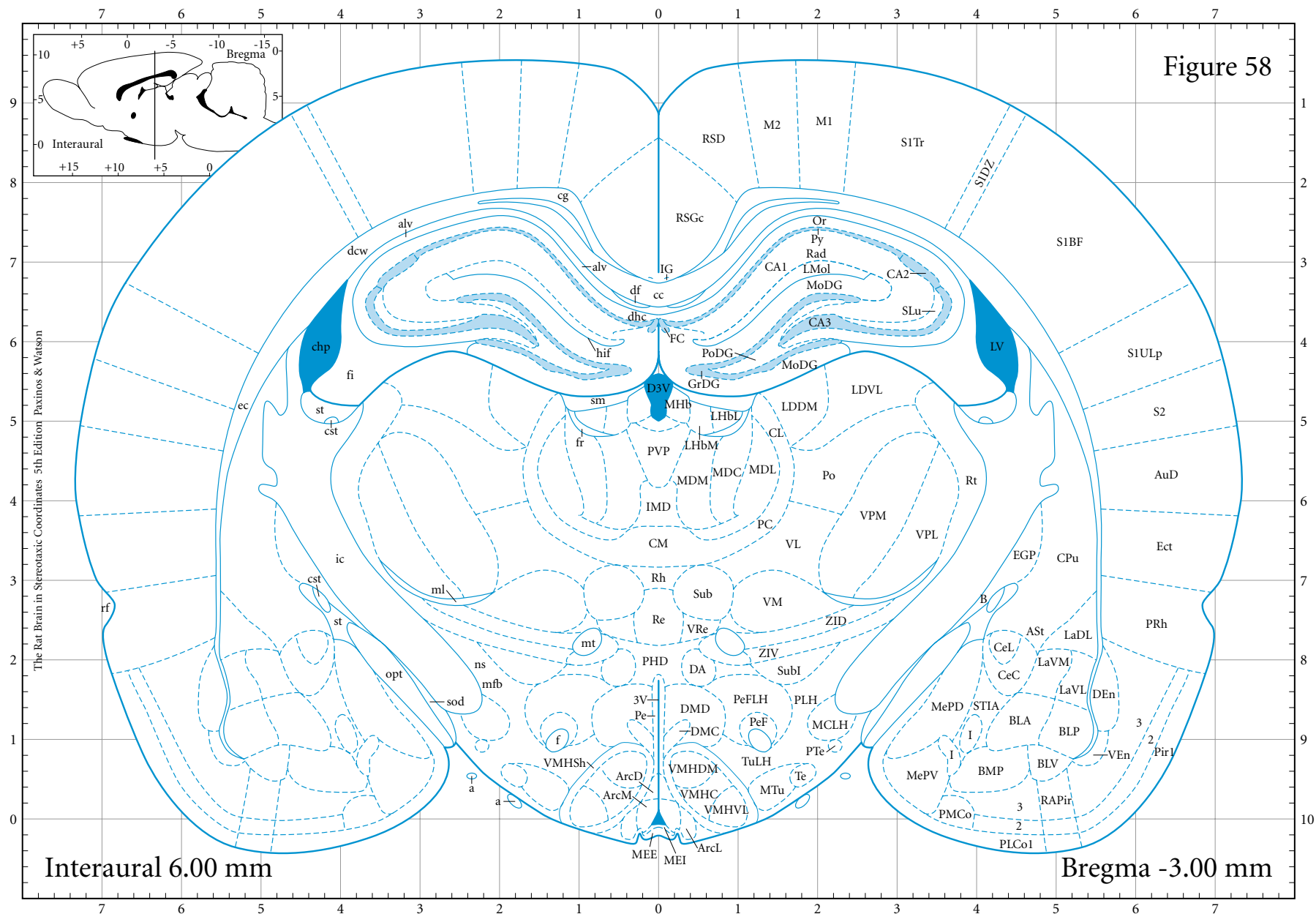
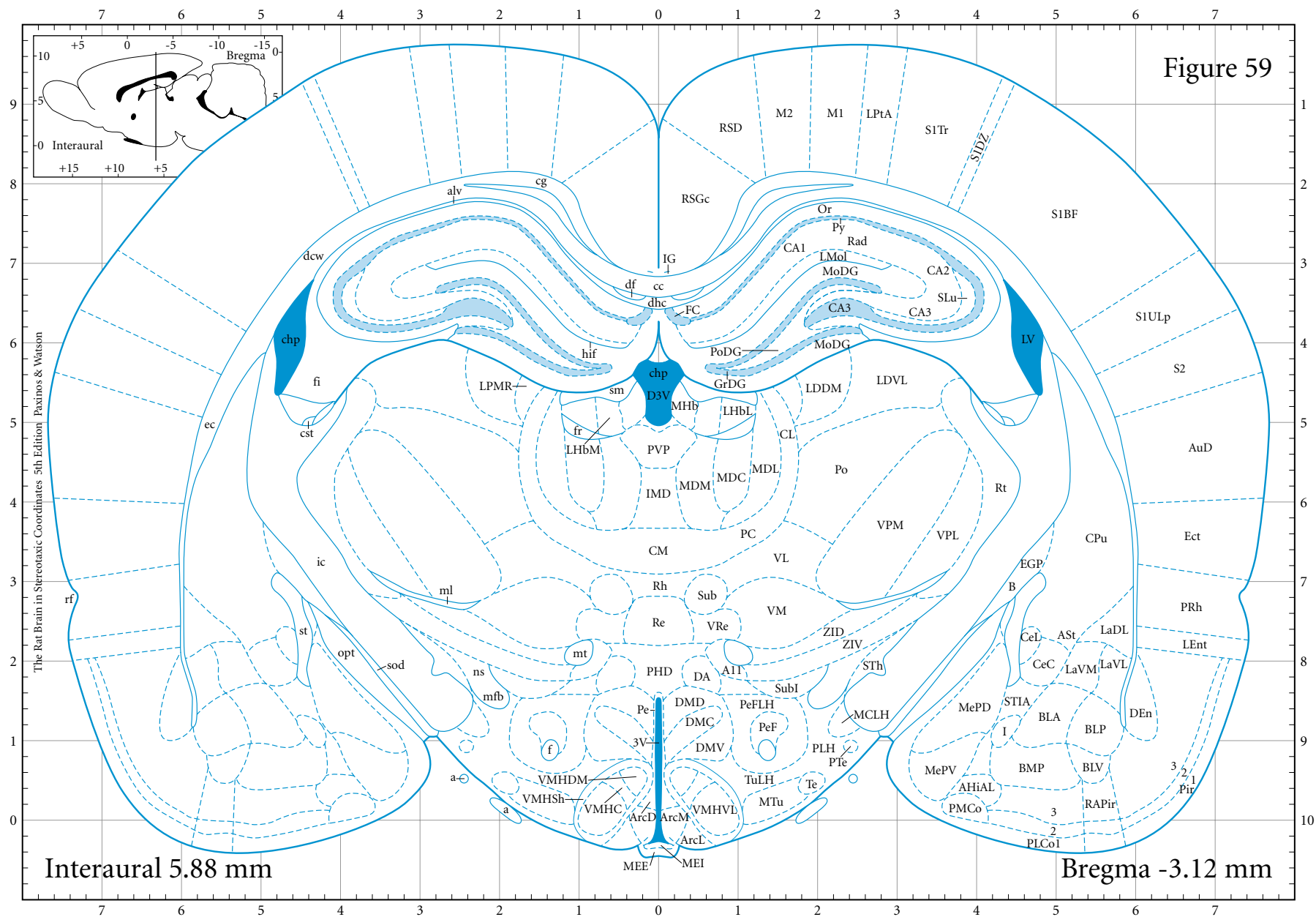


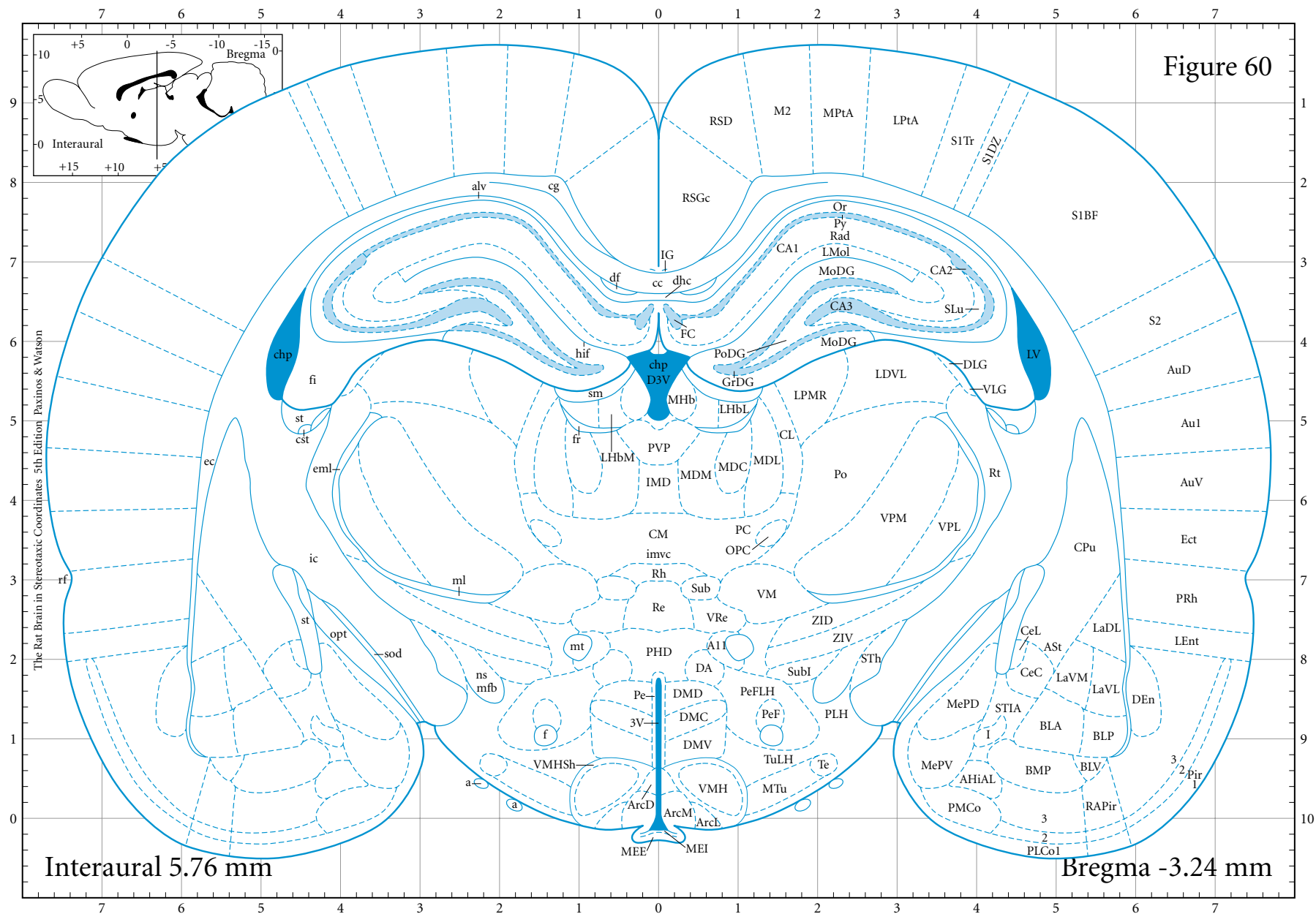
Figure 59

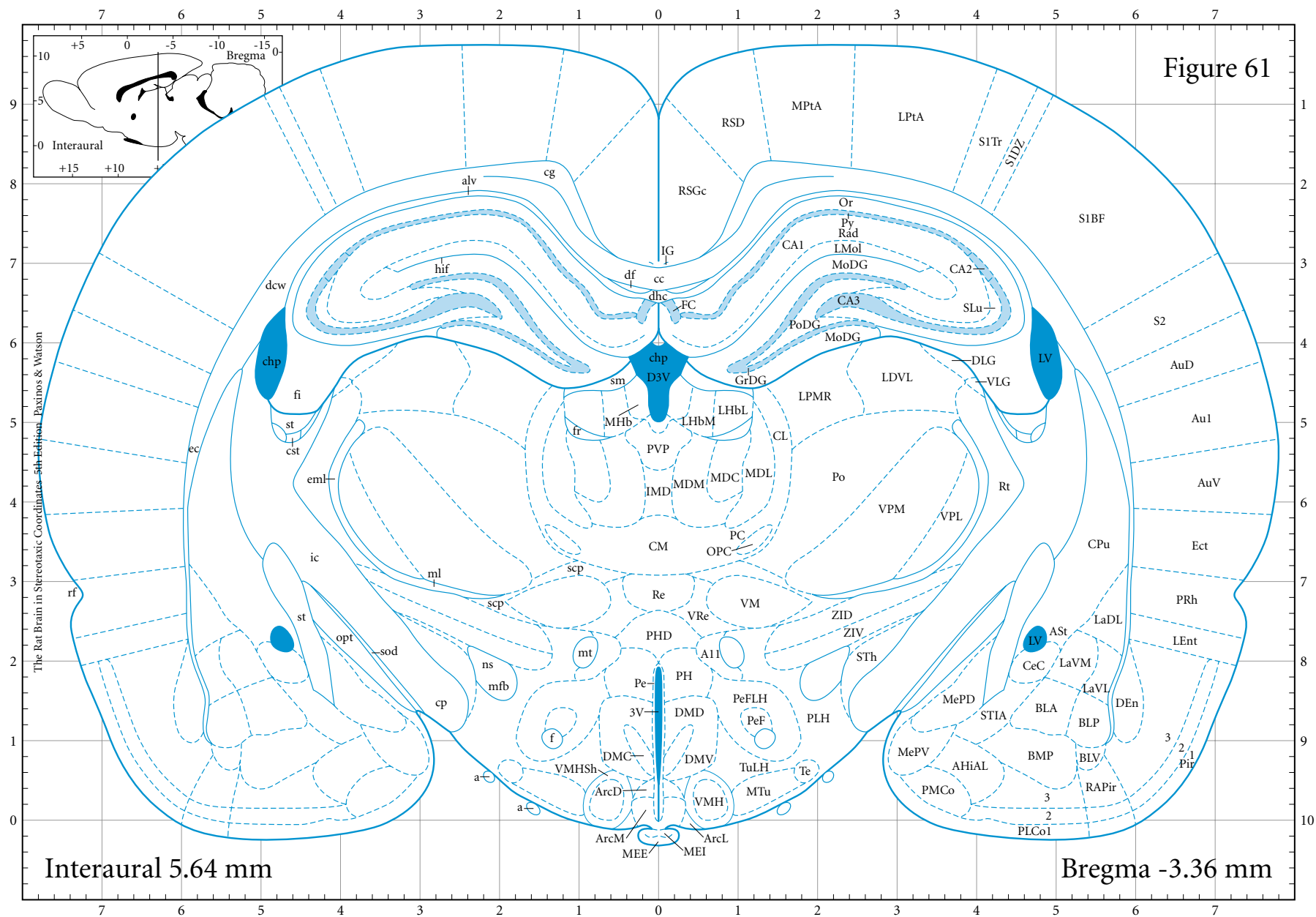


- |                      |                       |                      |                        |                         |                       |                        |                         |
|----------------------|-----------------------|----------------------|------------------------|-------------------------|-----------------------|------------------------|-------------------------|
| 1 layer 1 cortex     | ArcL arcuate hy lat   | BLV basolat amy vent | chp choroid plexus     | df dorsal fornix        | eml ext medullary lam | IG indusium griseum    | LHbL lat habenular lat  |
| 2 layer 2 cortex     | ArcM arcuate hy med   | BMP basomed am post  | CL centrolat th nu     | dhc dorsal hipp comm    | f fornix              | IMD intermediodors nu  | LHbM lat habenular med  |
| 3 layer 3 cortex     | ASt amygdalostr trans | CA1 field CA1 hipp   | CM cent med th nu      | DLG dors lat geniculate | FC fasciola cinereum  | imvc intmedvent comm   | LMol lacunosum molec    |
| 3V 3rd ventricle     | Au1 primary aud cx    | CA2 field CA2 hipp   | CPu caudate putamen    | DMC dorsomed compact    | fi fimbria of hipp    | LaDL lat amy dorsolat  | LPMR LP mediorostral    |
| a artery             | AuD 2ary aud cx, dors | CA3 field CA3 hipp   | cst commiss st term    | DMD dorsomedial dors    | fr fasc retroflexus   | LaVL lat am ventrolat  | LPtA lat parietal assoc |
| A11 A11 dopamine     | AuV 2ary aud cx, vent | cc corpus callosum   | D3V dorsal 3rd vent    | DMV dorsomed by vent    | GrDG granular dent gy | LaVM lat am ventromed  | LV lat ventricle        |
| AHiAL AHi anterolat  | B basal nu            | CeC central amy caps | DA dorsal hy area      | ec external capsule     | I intercalated nu     | LDDM LD dorsomed       |                         |
| alv alveus of hipp   | BLA basolat amy ant   | CeL central amy lat  | dcw deep cerebri white | Ect ectorhinal cx       | LDVL LD ventrolat     | LEnt lat entorhinal cx |                         |
| ArcD arcuate hy dors | BLP basolat amy post  |                      | DEn dorsal endopirif   | EGP ext globus pallidus |                       |                        |                         |



M1 primary motor cx  
M2 2ary motor cx  
MCLH magnocell lat hy  
MDC mediadorsal cent  
MDL mediadorsal lat  
MDM mediadorsal med  
MEE med eminence ext  
MEI med eminence int  
MePD med posterodors  
MePV med posterovent  
mfb med forebr bundle  
MHb med habenular nu  
ml medial lemniscus  
MoDG molecular dent gy  
MPtA med parietal assn  
mt mammillothal tr  
MTu medial tuberal nu  
ns nigrostriat bundle  
OPC oval paracent nu  
opt optic tract  
Or oriens layer hipp  
PC paracentral th nu  
Pe periventric th nu  
PeF perifornical nu  
PeFLH perifornical lat hy  
PHD post hy area dors  
Pir piriform cx  
PLCo1 postlat cort am 1  
PLH peduncular lat hy  
PMCo postmed cort am  
Po post thalamic nu  
PoDG polymorph dent gy  
PRh perirhinal cx  
PTe paraterete nu  
PVP paraventr th post  
Py pyramidal cells  
Rad radiatum layer  
RAPir rost amygdalopir  
Re reuniens th nu  
rf rhinal fissure  
Rh rhomboid thal nu  
RSD retrosple dysgran  
RSGc RSG, c region  
Rt reticular th nu  
S1BF S1 cx, barrel field  
S1DZ S1 dysgranular zn  
S1Tr S1 trunk region  
S1ULp S1 upper lip region  
S2 2ary somatosens  
SLu stratum lucidum  
sm stria medullaris  
sod supraoptic decussn  
st stria terminalis  
STh subthalamic nu  
STIA ST intraamygdal  
Sub submedius th nu  
Subl subincertal nu  
Te terete hypothal nu  
TuLH tuberal lat hy  
VL ventrolat th nu  
VLG vent lat genic nu  
VM ventromed nu  
VMH ventromed hy nu  
VMHC VMH, central  
VMHDM VMH, dorsomed  
VMHsh VMH shell  
VMHVL VMH, ventrolat  
VPL vent posterolat nu  
VPM vent posteromed  
VRe vent reuniens nu  
ZID zona incerta does  
ZIV zona incerta vent





- |                      |                          |                      |                      |                         |                       |                        |                        |
|----------------------|--------------------------|----------------------|----------------------|-------------------------|-----------------------|------------------------|------------------------|
| 1 layer 1 cortex     | ArcL arcuate hy lat      | BLP basolat amy post | chp choroid plexus   | df dorsal fornix        | f fornix              | InfS infundibular stem | LPLR LP laterorostral  |
| 2 layer 2 cortex     | ArcLP arcuate lateropost | BLV basolat amy vent | CL centrolat th nu   | dhc dorsal hipp comm    | FC fasciola cinereum  | LaDL lat amy dorsolat  | LPML LP mediorostral   |
| 3 layer 3 cortex     | ArcM arcuate hy med      | BMP basomed am post  | CM cent med th nu    | DLG dors lat geniculate | fi fimbria of hipp    | LaVL lat am ventrolat  | LPa lat parietal assoc |
| 3V 3rd ventricle     | ArcMP arcuate med post   | CA1 field CA1 hipp   | cp cerebral peduncle | DMC dorsomed compact    | fr fasc retroflexus   | LaVM lat am ventromed  | LV lat ventricle       |
| a artery             | ASt amygdalostr trans    | CA2 field CA2 hipp   | CPu caudate putamen  | DMD dorsomedial dors    | GrDG granular dent gy | LDVL LD ventrolat      |                        |
| A11 A11 dopamine     | Au1 primary aud cx       | CA3 field CA3 hipp   | cst commiss st term  | DMV dorsomed hy vent    | hif hipp fissure      | LEnt lat entorhinal cx |                        |
| AHiAL AHi anterolat  | AuD 2ary aud cx, dors    | cc corpus callosum   | D3V dorsal 3rd vent  | ec external capsule     | ic internal capsule   | LHbL lat habenular lat |                        |
| alv alveus of hipp   | AuV 2ary aud cx, vent    | CeC central amy caps | dcw deep cereb white | Ect ecterhinal cx       | IG indusium griseum   | LHbM lat habenular med |                        |
| ArcD arcuate hy dors | BLA basolat amy ant      | cg cingulum          | DEn dorsal endopirif | eml ext medullary lam   | IMD intermediodors nu | LMol lacunosum molec   |                        |

MDC mediadorsal cent  
MDL mediadorsal lat  
MDM mediadorsal med  
MEE med eminence ext  
MEI med eminence int  
MePD med posterodors  
MePV med posterovent  
mfb med forebr bundle

MHb med habenular nu  
ml medial lemniscus  
MoDG molecular dent gy  
MPtA med parietal assn  
mt mamillothal tr  
MTu medial tubular nu  
ns nigrostriat bundle  
OPC oval paracent nu

opt optic tract  
Or oriens layer hipp  
PC paracentral th nu  
Pe periventric th nu  
PeF perifornical nu  
PeFLH perifornical lat hy  
PH post hy nu  
PHD post hy area dors

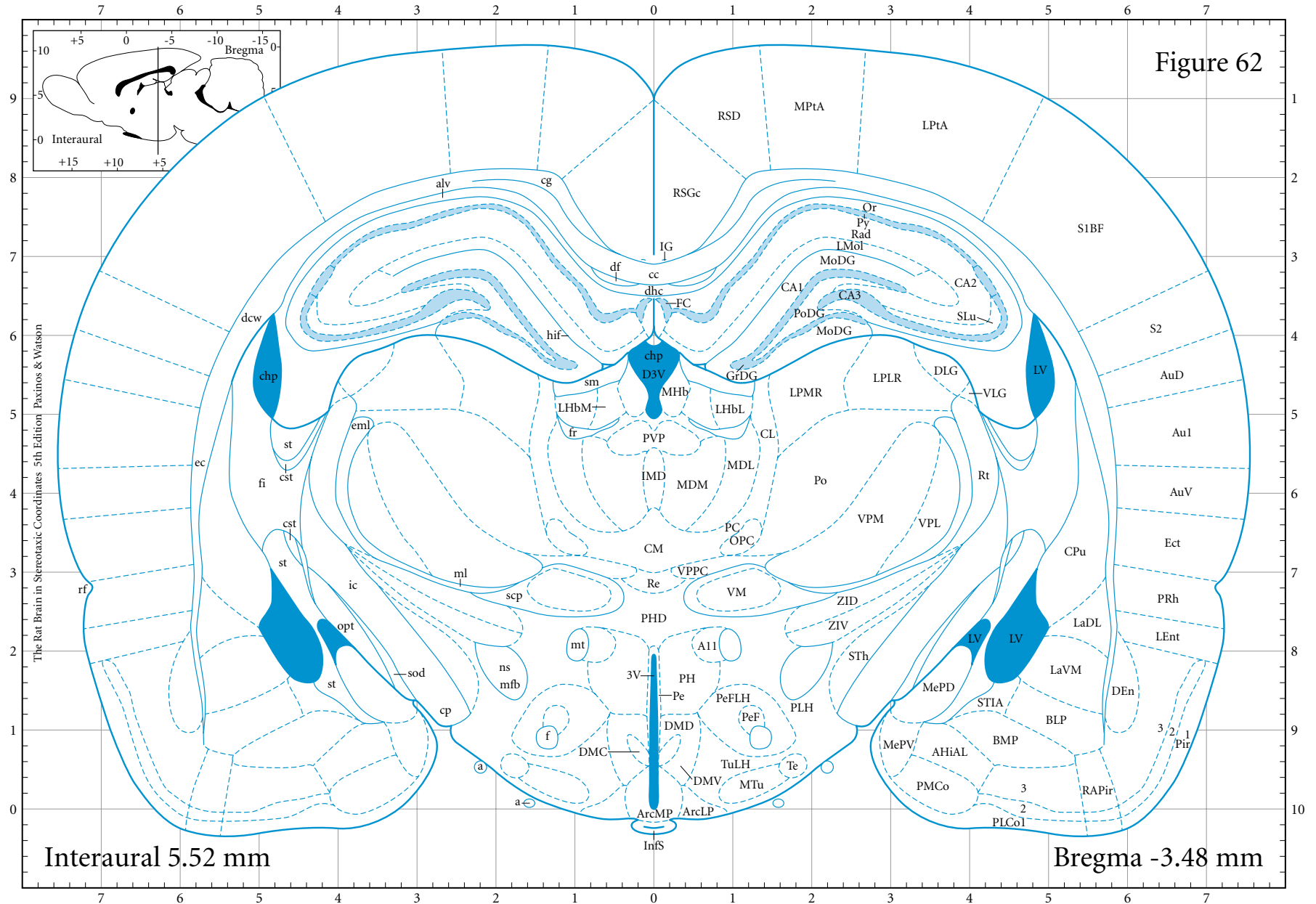
Pir piriform cx  
PLCo1 postlat cort am 1  
PLH peduncular lat hy  
PMCo postmed cort am  
Po post thalamic nu  
PoDG polymorph dent gy  
PRh perirhinal cx  
PVP paraventr th post

Py pyramidal cells  
Rad radiatum layer  
RAPir rost amygdalopir  
Re reuniens th nu  
rf rhinal fissure  
RSD retrosple dysgran  
RSGc RSG, c region  
Rt reticular th nu

S1BF S1 cx, barrel field  
S1DZ S1 dysgranular zn  
S1Tr S1 trunk region  
S2 2ary somatosens  
scp sup cerebellar ped  
SLu stratum lucidum  
sm stria medullaris  
sod supraoptic decussn

st stria terminalis  
STh subthalamic nu  
STIA ST intraamygdal  
Te terete hypothal nu  
TuLH tuberal lat hy  
VLG vent lat genic nu  
VM ventromed nu  
VMH ventromed hy nu

VMHSh VMH shell  
VPL vent posterolat nu  
VPM vent posteromed  
VPPC vent post parvic  
VRe vent reuniens nu  
ZID zona incerta does  
ZIV zona incerta vent







MDL mediadorsal lat  
MDM mediadorsal med  
MePD med posterodors  
MePV med posterovent  
mfb med forebr bundle  
MHb med habenular nu  
ml medial lemniscus

MoDG molecular dent gy  
MPtA med parietal assn  
mt mammillothal tr  
ns nigrostriat bundle  
OPC oval paracent nu  
opt optic tract  
Or oriens layer hipp

PC paracentral th nu  
PeF perifornical nu  
PeFLH perifornical lat hy  
PF parafascic th nu  
PH post hy nu  
PHD post hy area dors  
Pir piriform cx

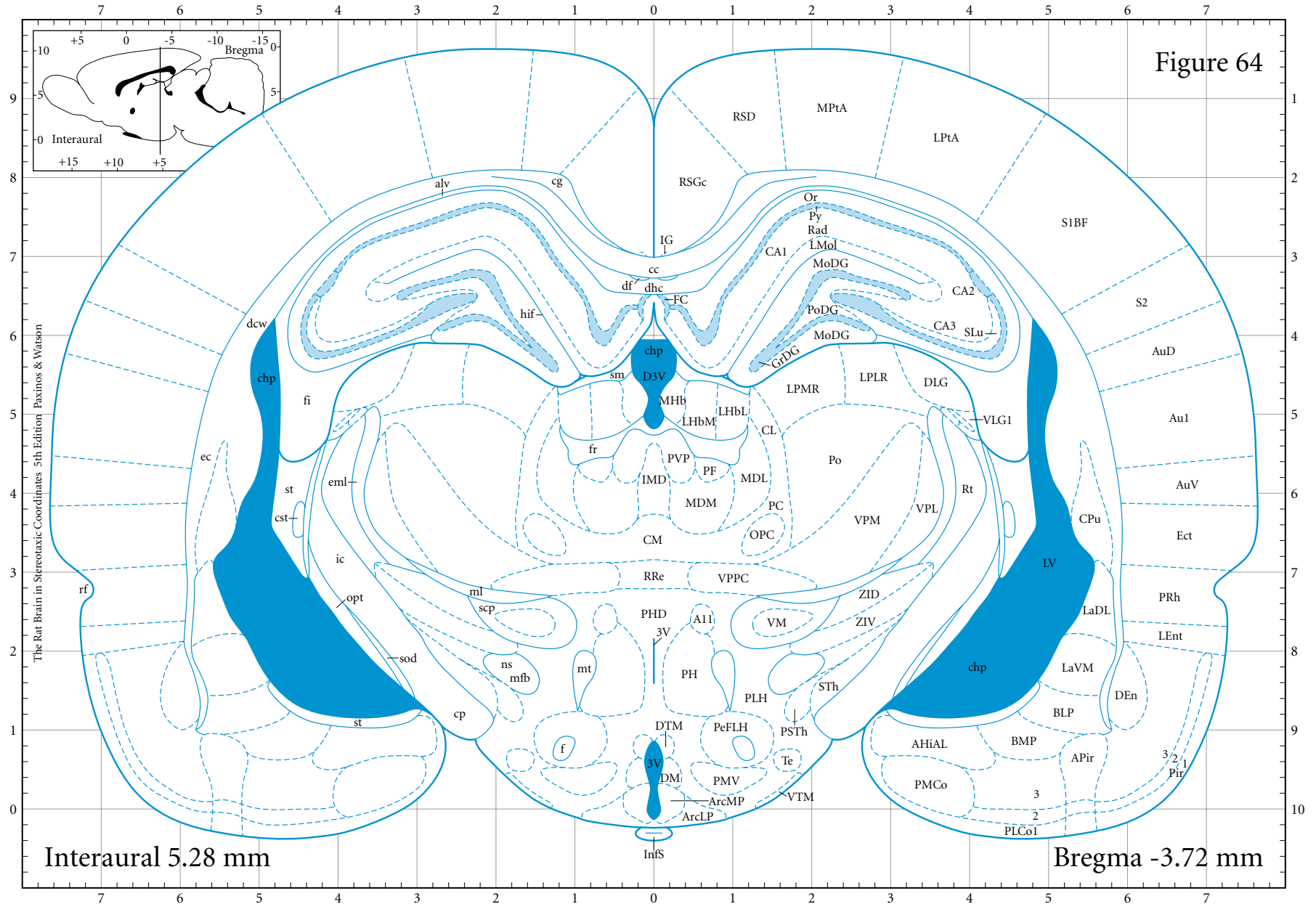
PLCo1 postlat cort am 1  
PLH peduncular lat hy  
PMCo postmed cort am  
PMV premamm nu vent  
Po post thalamic nu  
PoDG polymorph dent gy  
PRh perirhinal cx

PSTh parasubthal nu  
PVP paraventr th post  
Py pyramidal cells  
Rad radiatum layer  
RAPir rost amygdalopir  
rf rhinal fissure  
RRe retroreuniens

RSD retrosple dysgran  
RSGc RSG, c region  
Rt reticular th nu  
S1BF S1 cx, barrel field  
S2 2ary somatosens  
scp sup cerebellar ped  
SLu stratum lucidum

sm stria medullaris  
sod supraoptic decussn  
st stria terminalis  
STh subthalamic nu  
STIA ST intraamygdal  
Te terete hypothal nu  
VLG vent lat genic nu

VLG1 VLG layer 1  
VM ventromed nu  
VPL vent posterolat nu  
VPM vent posteromed  
VPPC vent post parvic  
VTM vent tuberomamm  
ZID zona incerta does  
ZIV zona incerta vent





VTM vent tuberomamm  
ZID zona incerta dors  
ZIV zona incerta vent

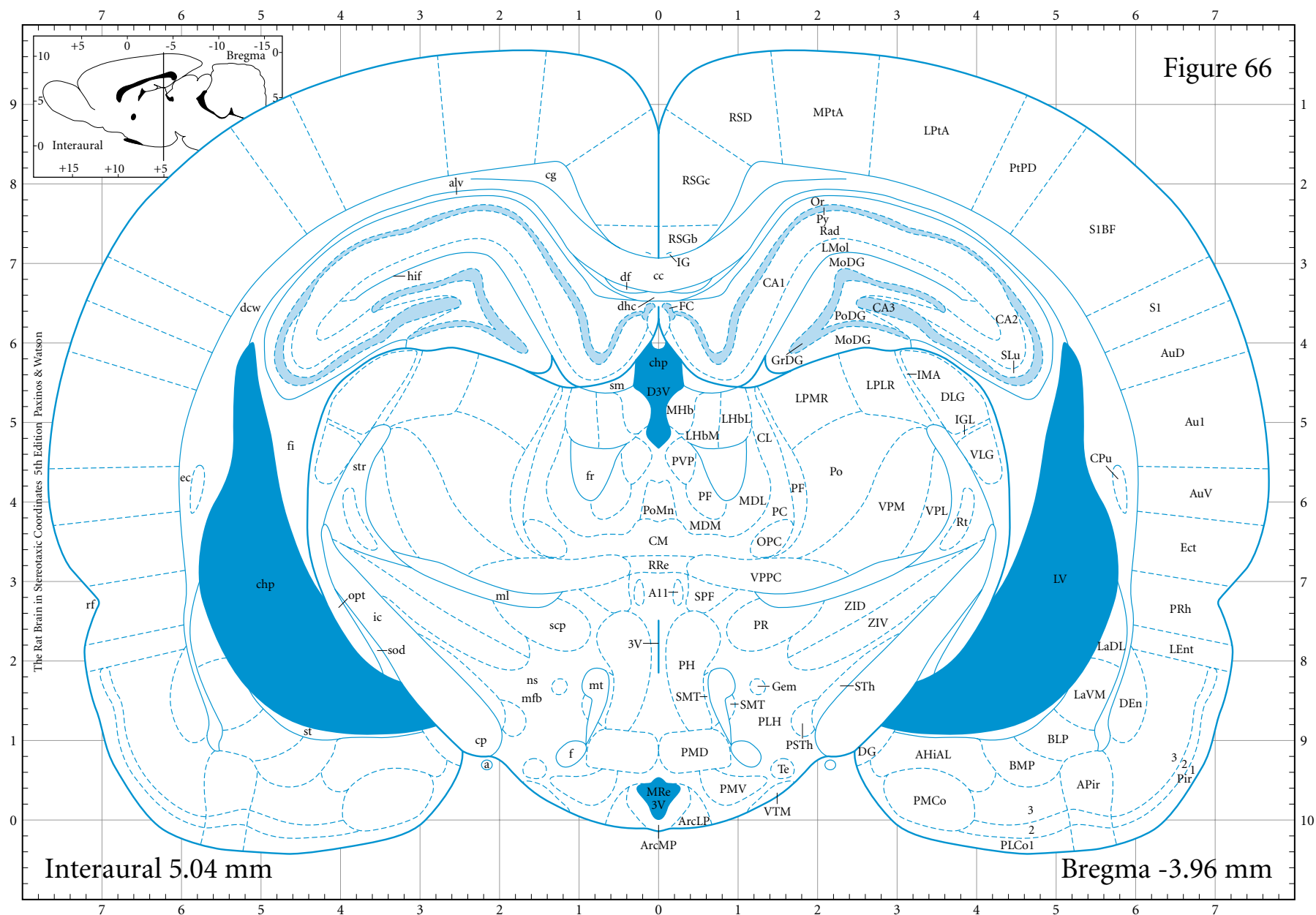
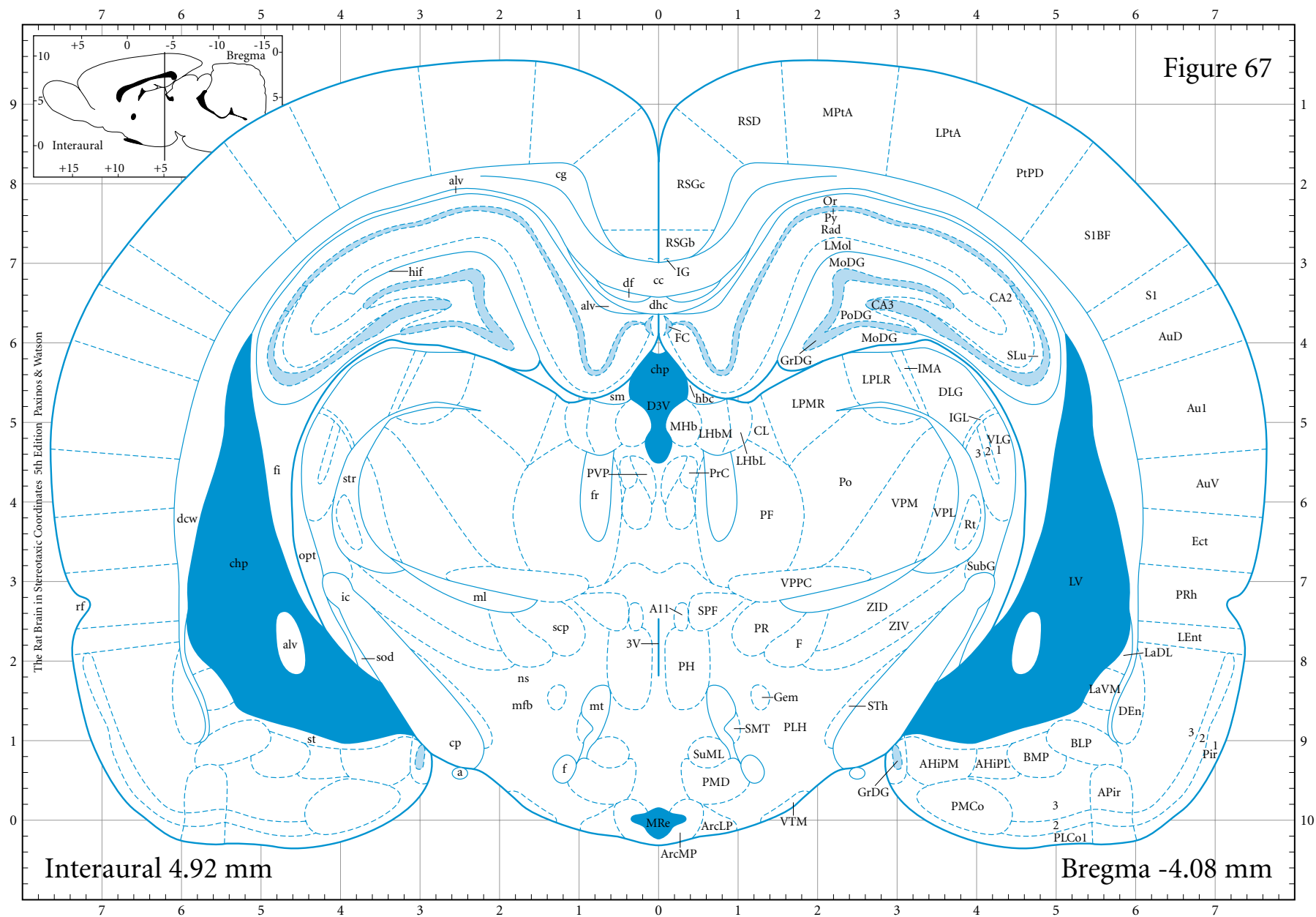


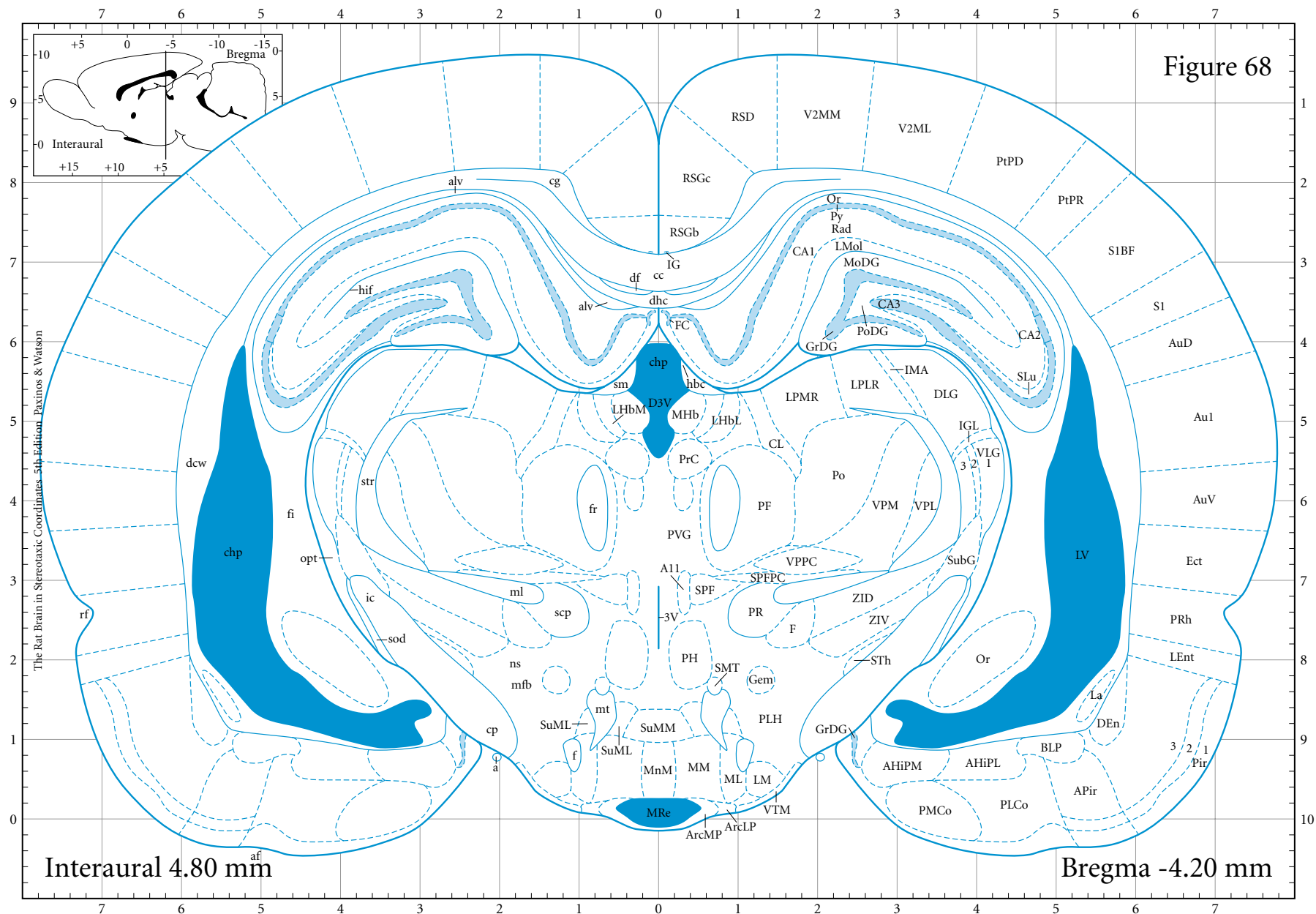
Figure 67



- |                    |                          |                        |                       |                         |                       |                         |                         |
|--------------------|--------------------------|------------------------|-----------------------|-------------------------|-----------------------|-------------------------|-------------------------|
| 1 layer 1 cortex   | AHiPL AHi posterlat      | AuD 2ary aud cx, dors  | cc corpus callosum    | DEn dorsal endopirif    | FC fasciola cinereum  | ic internal capsule     | LHbL lat habenular lat  |
| 2 layer 2 cortex   | AHiPM AHi posteromed     | AuV 2ary aud cx, vent  | cg cingulum           | df dorsal fornix        | fi fimbria of hipp    | IG indusium griseum     | LHbM lat habenular med  |
| 3 layer 3 cortex   | alv alveus of hipp       | BLP basolat amygd post | chp choroid plexus    | dhc dorsal hipp comm    | fr fasc retroflexus   | IGL intergenic leaf     | LM lat mammillary nu    |
| 3V 3rd ventricle   | APir amygdalopir trans   | BMP basomed am post    | CL centrolat th nu    | DLG dors lat geniculate | Gem gemini hy nu      | IMA intramedul th area  | LMol lacunosum molec    |
| a artery           | ArcLP arcuate lateropost | CA1 field CA1 hipp     | cp cerebral peduncle  | Ect ectorhinal cx       | GrDG granular dent gy | La lat amygd nu         | LPLR LP laterorostral   |
| A11 A11 dopamine   | ArcMP arcuate med post   | CA2 field CA2 hipp     | D3V dorsal 3rd vent   | F nu fields of Forel    | hbc habenular comm    | LaDL lat amygd dorsolat | LPMR LP mediorostral    |
| af amygdal fissure | Au1 primary aud cx       | CA3 field CA3 hipp     | dcw deep cerebr white | f fornix                | hif hipp fissure      | LaVM lat am ventromed   | LPta lat parietal assoc |
|                    |                          |                        |                       |                         |                       | LEnt lat entorhinal cx  | LV lat ventricle        |



VPM vent posteromed  
VPPC vent post parvic  
VTM vent tuberomamm  
ZID zona incerta dors  
ZIV zona incerta vent





mf	med forebr bundle	MRe	mamm recess 3V	Pir	piriform cx	PrC	precommiss nu	RSD	retrosple dysgran	sm	stria medullaris	V1	primary visual	ZIC	zona incerta caud
MHb	med habenular nu	mtg	mammilloteg tr	PLCo	postlat cort amyg	PRh	perirhinal cx	RSGb	RSG, b region	SNR	subst nigra retic	V2ML	V2 cx, mediolat	ZID	zona incerta does
ML	med mammill lat	ns	nigrostriat bundle	PLH	peduncular lat hy	PtPD	parietal postdors	RSGc	RSG, c region	sod	supraoptic decussn	V2MM	V2 cx, mediodors	ZIV	zona incerta vent
ml	medial lemniscus	OPT	olivary tract nu	PLi	post limitans th nu	PtPR	parietal postrost	S1	lary somatosens	SPFPC	SPF parvicell	VLG	vent lat genic nu		
MM	med mammill med	opt	optic tract	pm	principal mamm tr	PVG	periventric gray	S1BF	S1 cx, barrel field	str	sup thal radiation	VLI	ventral linear nu		
MnM	med mamm median	Or	oriens layer hipp	PMCo	postmed cort am	Py	pyramidal cells	Sc	scaphoid th nu	SubG	subgeniculate nu	VPL	vent posterolat nu		
MoDG	molecular dent gy	PF	parafascic th nu	Po	post thalamic nu	Rad	radiatum layer	SCO	subcomm organ	sumd	supramamm decusn	VPM	vent posteromed		
mp	mammillary ped	PH	post hy nu	PoDG	polymorph dent gy	rf	rhinal fissure	scp	sup cerebellar ped	SuML	supramamm lat	VPPC	vent post parvic		
MPT	med pretectal nu	PHA	post hy area	PR	prerubral field	RI	rost interst mlf	SLu	stratum lucidum	SuMM	supramamm med	VTM	vent tuberomamm		

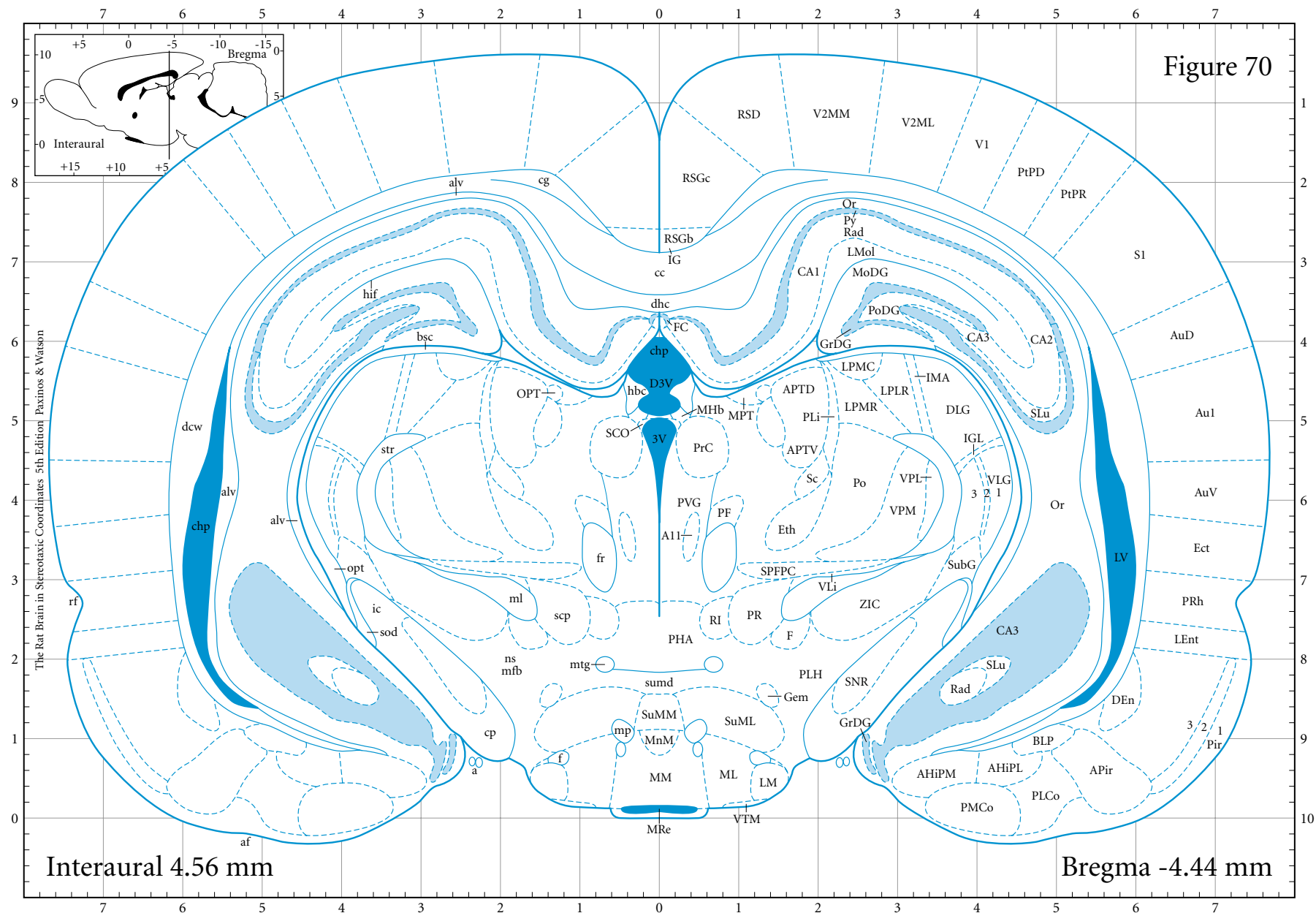
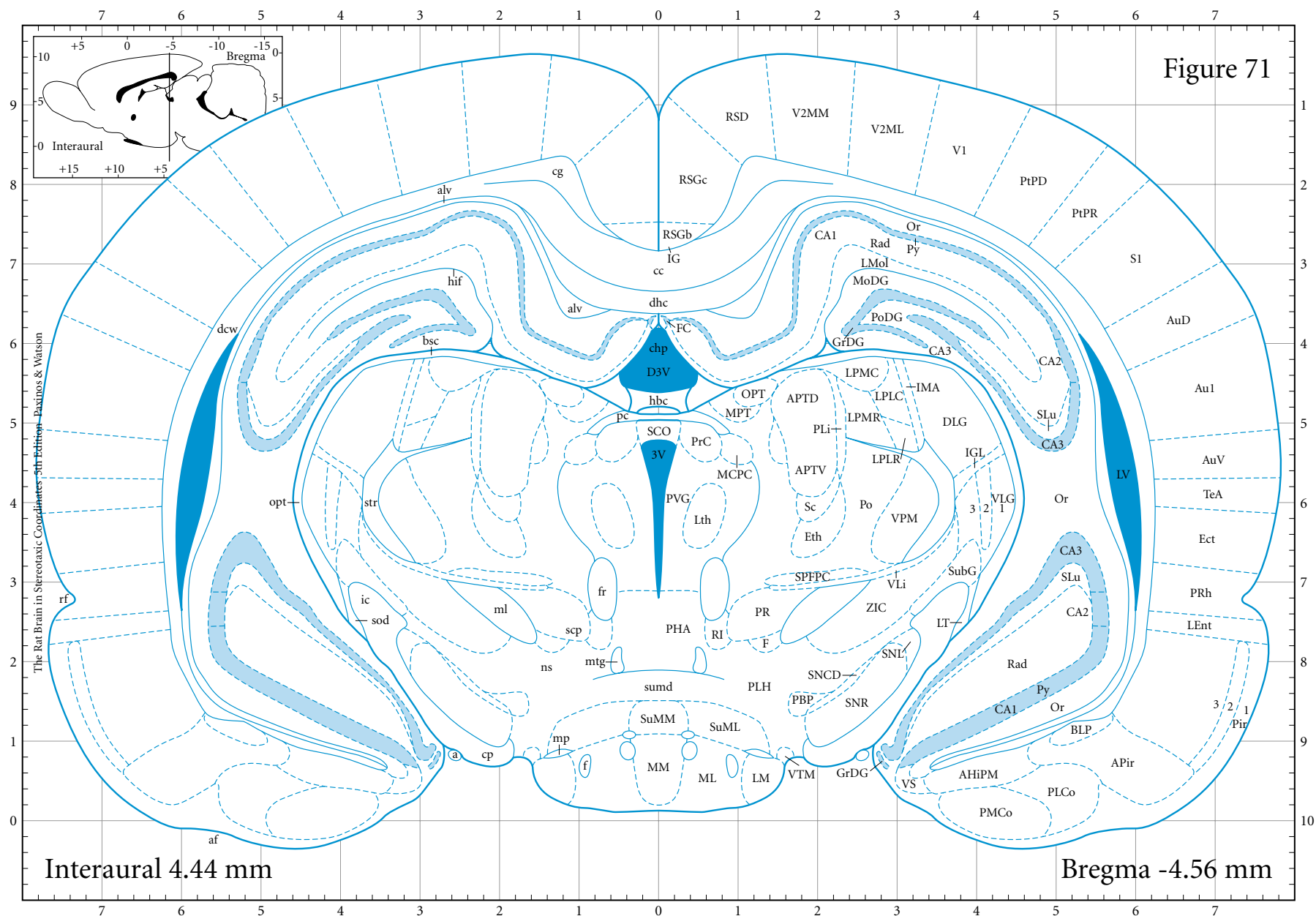




Figure 71



1 layer 1 cortex  
2 layer 2 cortex  
3 layer 3 cortex  
3V 3rd ventricle  
a artery

af amygdal fissure  
AHiPM AHi posteromed  
alv alveus of hipp  
APir amygdalopir trans

APTD ant pretectal dors  
APTV ant pretectal vent  
AuD 2ary aud cx, dors  
AuV 2ary aud cx, vent  
BLP basolat amy post  
bsc brachium sup coll  
CA1 field CA1 hipp  
CA2 field CA2 hipp

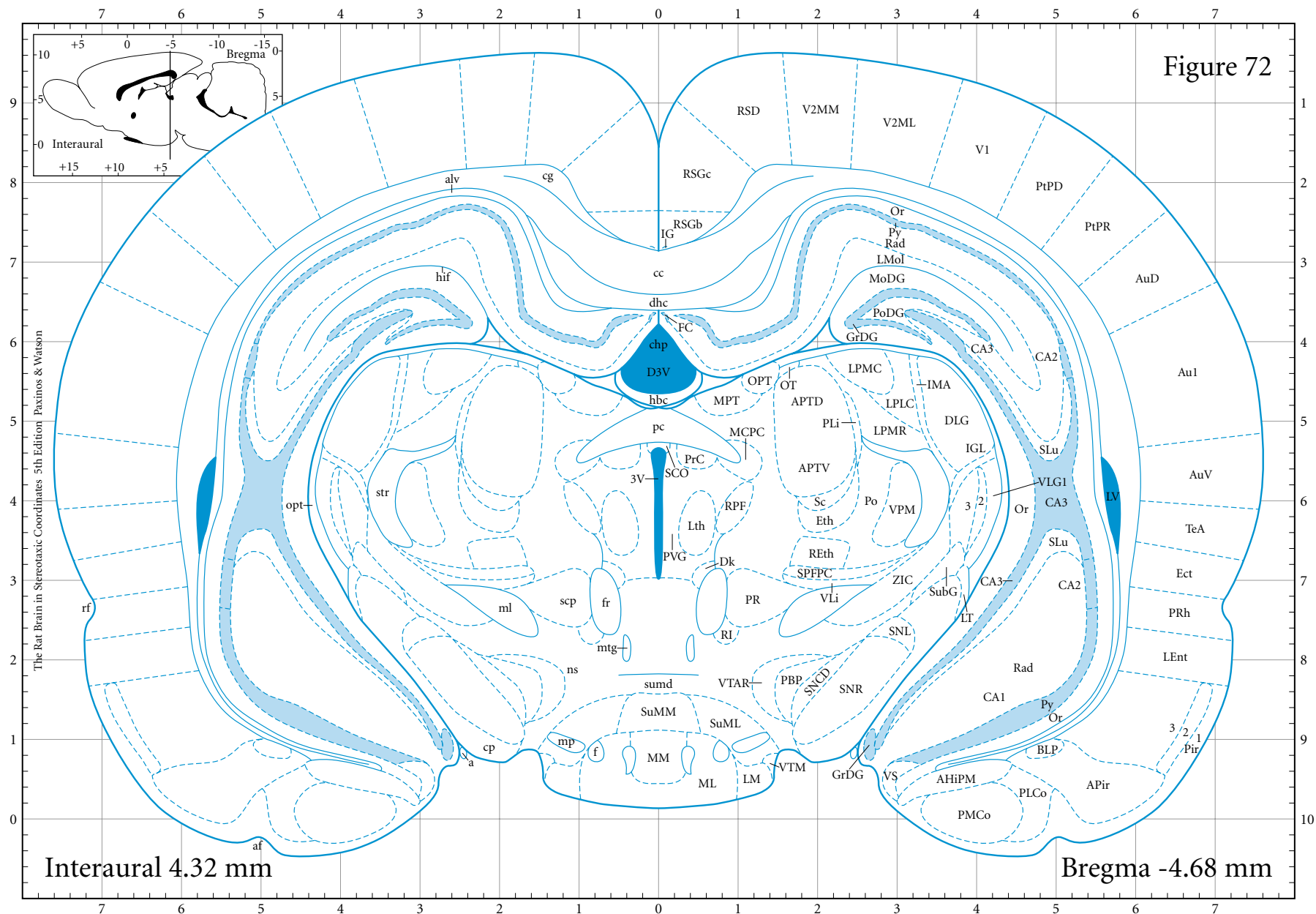
CA3 field CA3 hipp  
cc corpus callosum  
cg cingulum  
chp choroid plexus  
cp cerebral peduncle  
D3V dorsal 3rd vent  
dcw deep cerebr white  
dhc dorsal hipp comm  
Dk nu Darkschewitsch

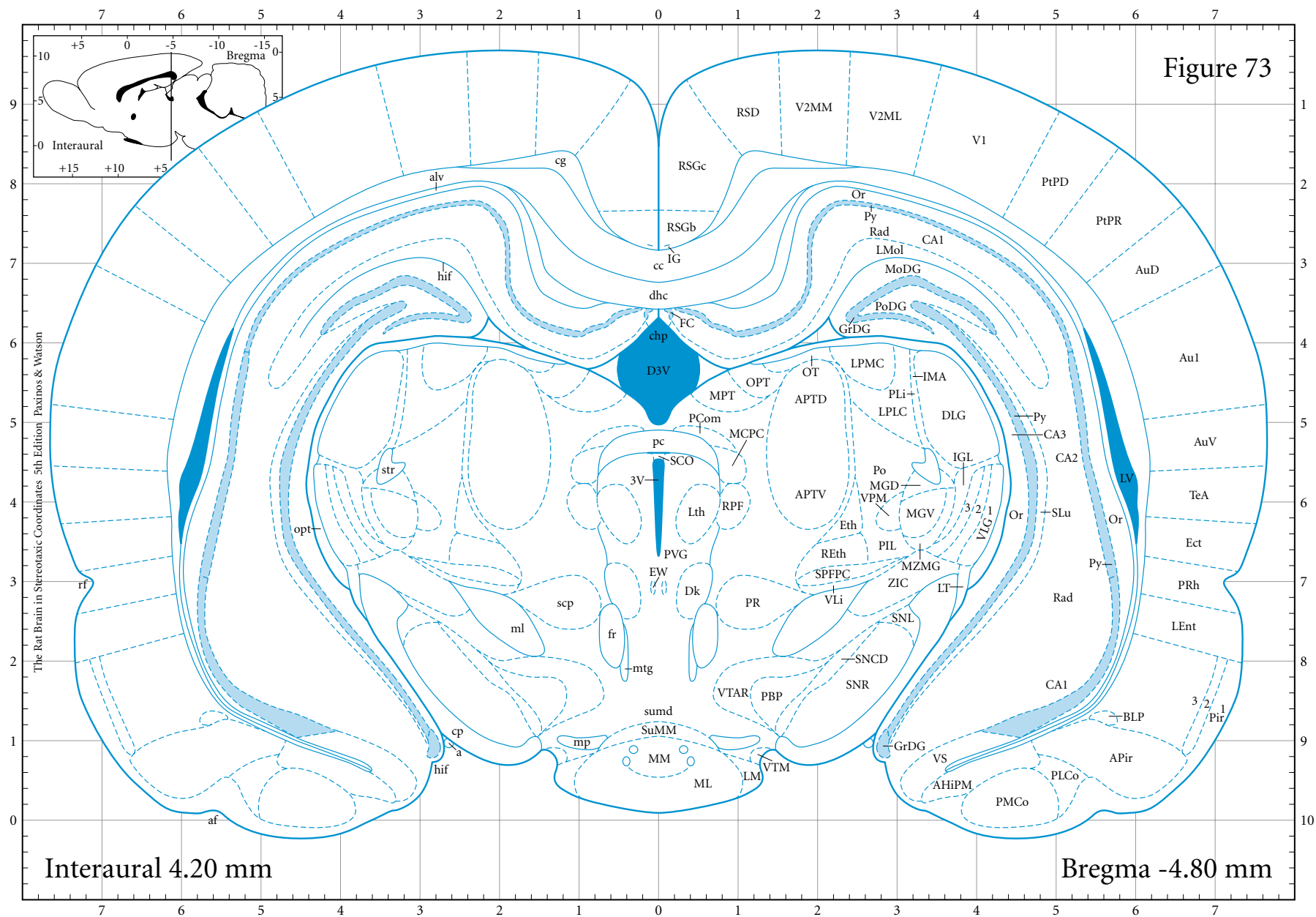
DLG dors lat geniculate  
Ect ectorhinal cx  
Eth ethmoid th nu  
F nu fields of Forel  
f fornix  
FC fasciola cinereum  
GrDG granular dent gy  
hbc habenular comm

hif hipp fissure  
ic internal capsule  
LPLR LP laterorostral  
LPMC LP mediocaudal  
LPMR LP mediorostral  
LT lat terminal nu  
Lth lithoid nu  
LV lat ventricle

LPLR LP laterorostral  
LPMC LP mediocaudal  
LPMR LP mediorostral  
LT lat terminal nu  
Lth lithoid nu  
LV lat ventricle

MCPC magnocell nu pc	OPT olivary prelect nu	PLH peduncular lat hy	PtPR parietal postrost	RSGb RSG, b region	SNR subst nigra retic	V1 primary visual	VTM vent tuberomamm
ML med mammill lat	opt optic tract	PLi post limitans th nu	PVG periventric gray	RSGc RSG, c region	sod supraoptic decussn	V2ML V2 cx, mediolat	ZIC zona incerta caud
ml medial lemniscus	Or oriens layer hipp	PMCo postmed cort am	Py pyramidal cells	S1 lary somatosens	SPFPC SPF parvicell	V2MM V2 cx, mediod	
MM med mammill med	OT nu of optic tract	Po post thalamic nu	Rad radiatum layer	Sc scaphoid th nu	str sup thal radiation	VLG vent lat genic nu	
MoDG molecular dent gy	PBP parabrach pigment	PoDG polymorph dent gy	REth retroethmoid nu	SCo subcomm organ	SubG subgeniculate nu	VLG1 VLG layer 1	
mp mammillary ped	pc posterior comm	PR prerubral field	rf rhinal fissure	scp sup cerebellar ped	sumd supramamm decusn	VLi ventral linear nu	
MPT med prelectal nu	PHA post hy area	PrC precommiss nu	RI rost interst mlf	SLu stratum lucidum	SuML supramamm lat	VPM vent posteromed	
mtg mammilloteg tr	Pir piriform cx	PRh perirhinal cx	RPF retroparafasc nu	SNCD SN compact dors	SuMM supramamm med	VS ventral subiculum	
ns nigrostriat bundle	PLCo postlat cort amy	PtPD parietal postdors	RSD retrosple dysgran	SNL subst nigra lat	TeA temporal assocn	VTAR rostral VTA	





1 layer 1 cortex  
2 layer 2 cortex  
3 layer 3 cortex  
3V 3rd ventricle  
a artery  
af amygdal fissure  
AHIPM AHi posteromed  
alv alveus of hipp  
APir amygdalopir trans

APTD ant pretectal dors  
APTV ant pretectal vent  
Aq aqueduct  
Au1 primary aud cx  
AuD 2ary aud cx, dors  
AuV 2ary aud cx, vent  
BL basolat amygd nu  
BLP basolat amygd post  
bsc brachium sup coll

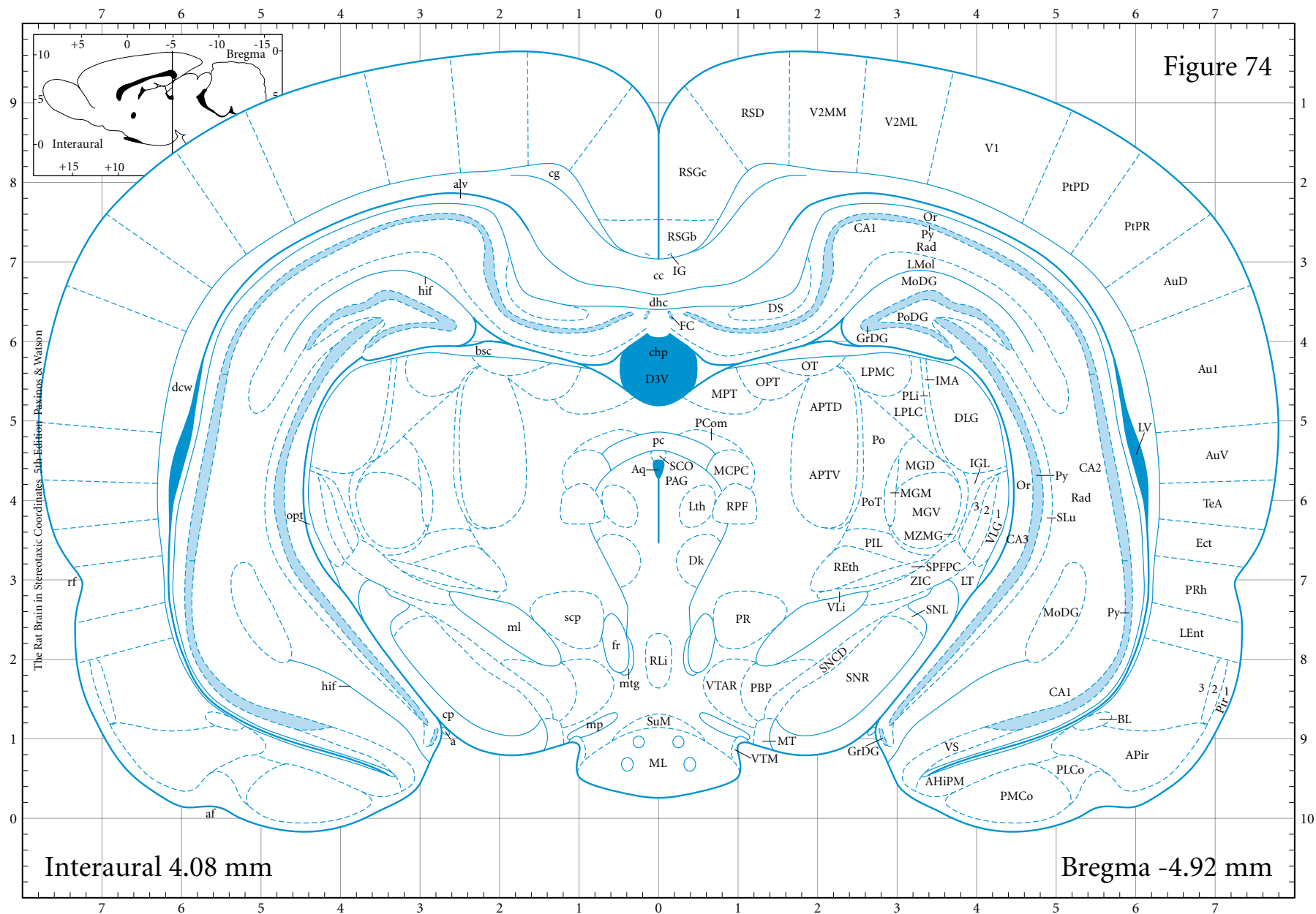
CA1 field CA1 hipp  
CA2 field CA2 hipp  
CA3 field CA3 hipp  
cc corpus callosum  
cg cingulum  
chp choroid plexus  
cp cerebral peduncle  
D3V dorsal 3rd vent  
dcw deep cerebr white

dhc dorsal hipp comm  
Dk nu Darkschewitsch  
DLG dors lat geniculate  
DS dorsal subiculum  
Ect ectorhinal cx  
Eth ethmoid th nu  
EW Edinger-Westphal  
FC fasciola cinereum  
fr fasc retroflexus

GrDG granular dent gy  
hif hipp fissure  
IG indusium griseum  
IGL intergenic leaf  
IMA intramedul th area  
LEnt lat entorhinal cx  
LM lat mammillary nu  
LMol lacunosum molec  
LPLC LP laterocaudal

LPMC LP mediocaudal  
LT lat terminal nu  
Lth lithoid nu  
LV lat ventricle

MCPC magnocell nu pc	MPT med pretectal nu	PBP parabrach pigment	PoDG polymorph dent gy	REth retroethmoid nu	SLu stratum lucidum	TeA temporal assoc	VTM vent tuberomamm
MGD med genic dorsal	MT med terminal nu	pc posterior comm	PoT post th nu triang	rf rhinal fissure	SNCD SN compact dors	V1 primary visual	ZIC zona incerta caud
MGM med genic medial	mtg mammilloteg tr	PCom nu of post comm	PR prerubral field	RLi rost linear raphe	SNL subst nigra lat	V2ML V2 cx, mediolat	
MGV med genic ventral	MZMG marg zn med genic	PIL post intralam th nu	PRh perirhinal cx	RPF retroparafasc nu	SNR subst nigra retic	V2MM V2 cx, mediodors	
ML med mammill lat	OPT olivary prectect nu	Pir piriform cx	PtPD parietal postdors	RSD retrosple dysgran	SPFPC SPF parvicell	VLG vent lat genic nu	
ml medial lemniscus	opt optic tract	PLCo postlat cort amygd	PtPR parietal postrost	RSGb RSG, b region	str sup thal radiation	VLi ventral linear nu	
MM med mammill med	Or oriens layer hipp	PLi post limitans th nu	PVG periventric gray	RSGc RSG, c region	SuM supramammill nu	VPM vent posteromed	
MoDG molecular dent gy	OT nu of optic tract	PMCo postmed cort am	Py pyramidal cells	SCO subcomm organ	sumd supramamm decusn	VS ventral subiculum	
mp mammillary ped	PAG periaqueduct gray	Po post thalamic nu	Rad radiatum layer	scp sup cerebellar ped	SuMM supramamm med	VTAR rostral VTA	







V2MM V2 cx, mediodorsal  
VLG vent lat genic nu  
VS ventral subiculum  
VTAR rostral VTA  
ZIC zona incerta caud

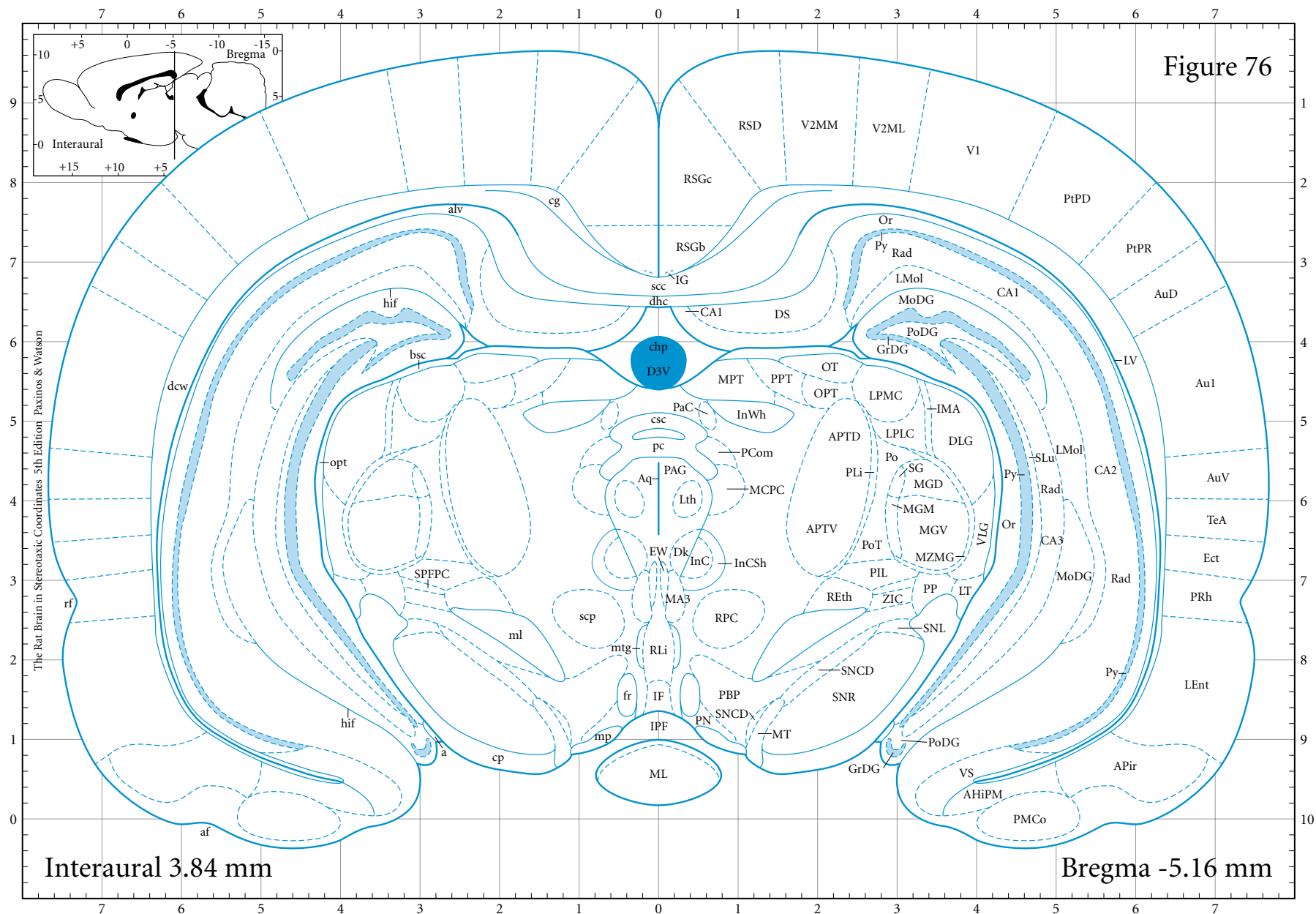
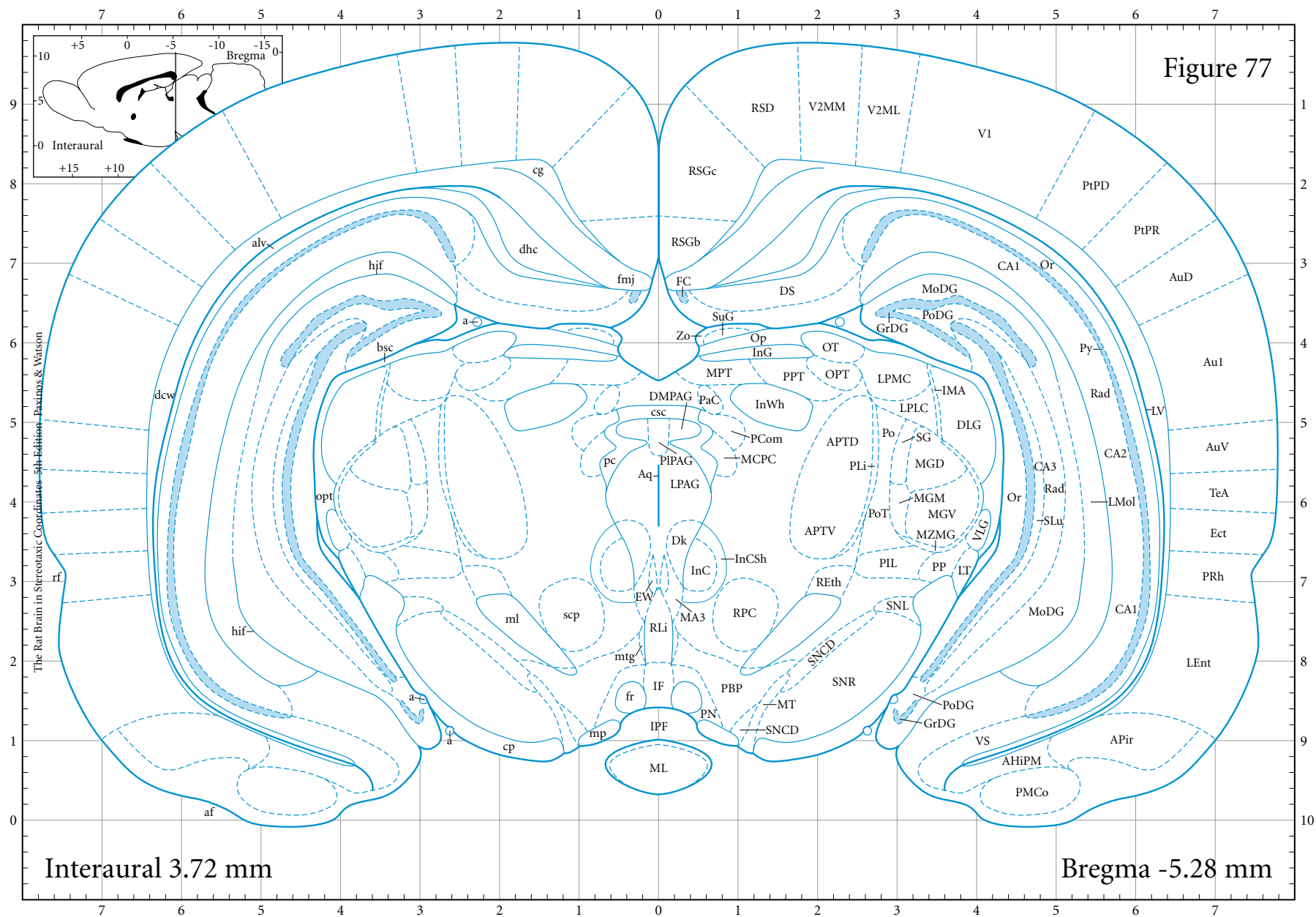


Figure 77



- |                         |                       |                         |                       |                          |                        |
|-------------------------|-----------------------|-------------------------|-----------------------|--------------------------|------------------------|
| a artery                | Au1 primary aud cx    | cp cerebral peduncle    | DS dorsal subiculum   | hif hipp fissure         | LEnt lat entorhinal cx |
| af amygdal fissure      | AuD 2ary aud cx, dors | csc comm of sup coll    | Ect ectorhinal cx     | IF interfascicular nu    | LMol lacunosum molec   |
| AHiPM AHi posteromed    | AuV 2ary aud cx, vent | dcw deep cerebr white   | EpP epipeduncular nu  | IMA intramedul th area   | LPAG lat periaqu gray  |
| alv alveus of hipp      | bsc brachium sup coll | dhc dorsal hipp comm    | EW Eninger-Westphal   | InC interstit nu Cajal   | LPLC LP laterocaudal   |
| APir amygdalopir trans  | CA1 field CA1 hipp    | Dk nu Darkschewitsch    | FC fasciola cinereum  | InCSh interstit nu shell | LPMC LP mediocaudal    |
| APTD ant pretectal dors | CA2 field CA2 hipp    | DLG dors lat geniculate | fmj forceps major     | InG intermed gray SC     | LT lat terminal nu     |
| APTV ant pretectal vent | CA3 field CA3 hipp    | DMPAG dorsomedial PAG   | fr fasc retroflexus   | InWh intermed white SC   | LV lat ventricle       |
| Aq aqueduct             | cg cingulum           | DpG deep gray SC        | GrDG granular dent gy | IPF interpedunc fossa    |                        |

MA3 medial acc oculom  
MCPC magnocell nu pc  
MGD med genic dorsal  
MGM med genic medial  
MGV med genic ventral  
ML med mammill lat  
ml medial lemniscus  
mlf med long fasc

MoDG molecular dent gy  
mp mammillary ped  
MPT med pretectal nu  
MT med terminal nu  
mtg mammilloteg tr  
MZMG marg zn med genic  
Op optic n layer SC  
OPT olivary prect nu

opt optic tract  
Or oriens layer hipp  
OT nu of optic tract  
PaC paracommissural  
PBP parabach pigment  
pc posterior comm  
PIL post intralam th nu  
PLi post limitans th nu

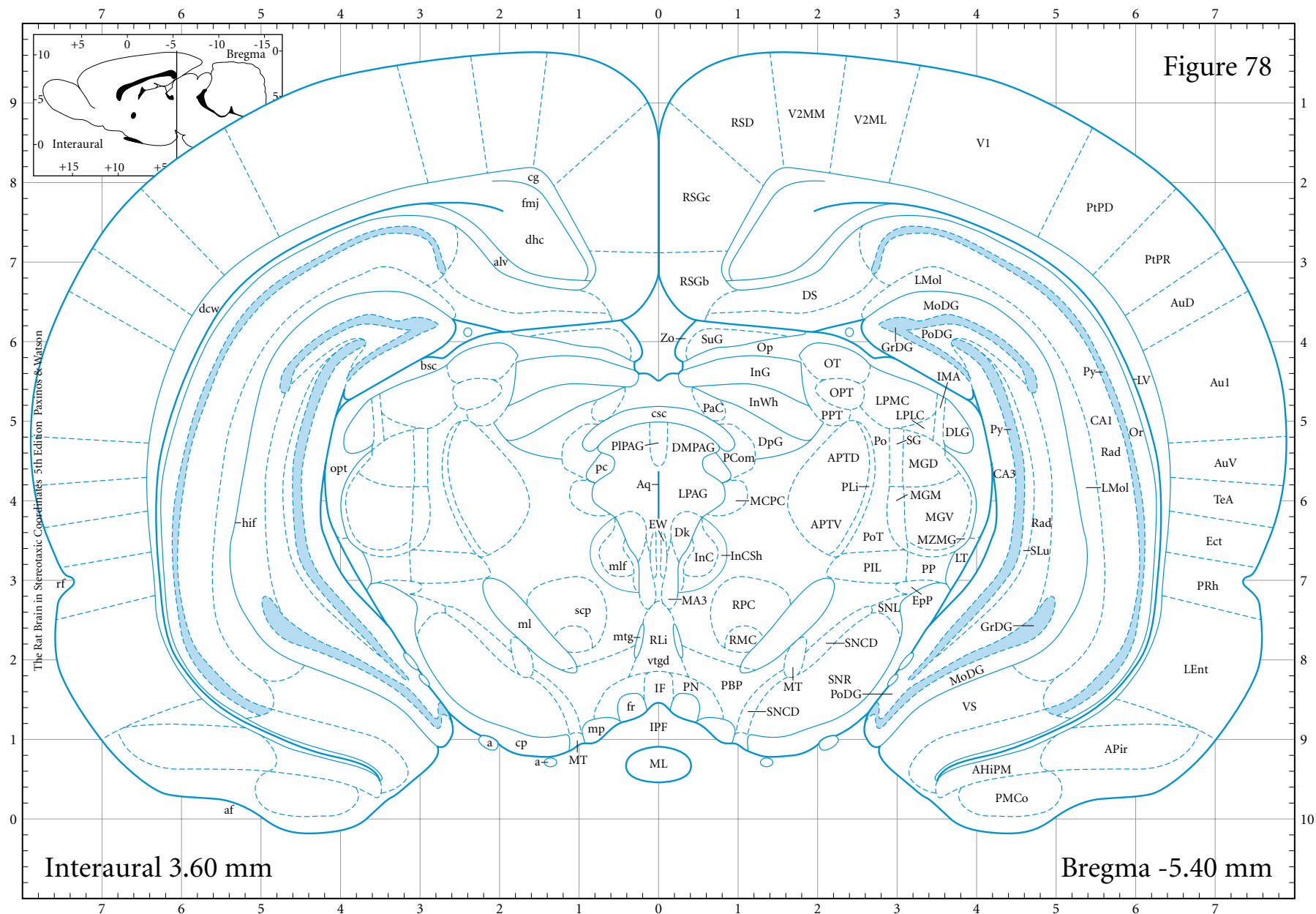
PIPAG pliolglial PAG  
PMCo postmed cort am  
PN paranigral nu  
Po post thalamic nu  
PoDG polymorph dent gy  
PoT post th nu triang  
PP peripeduncular nu  
PPT post pretectal nu

PRh perirhinal cx  
PtPD parietal postdors  
PtPR parietal postrost  
Py pyramidal cells  
Rad radiatum layer  
REth retroethmoid nu  
rf rhinal fissure  
RL retrolemniscal nu

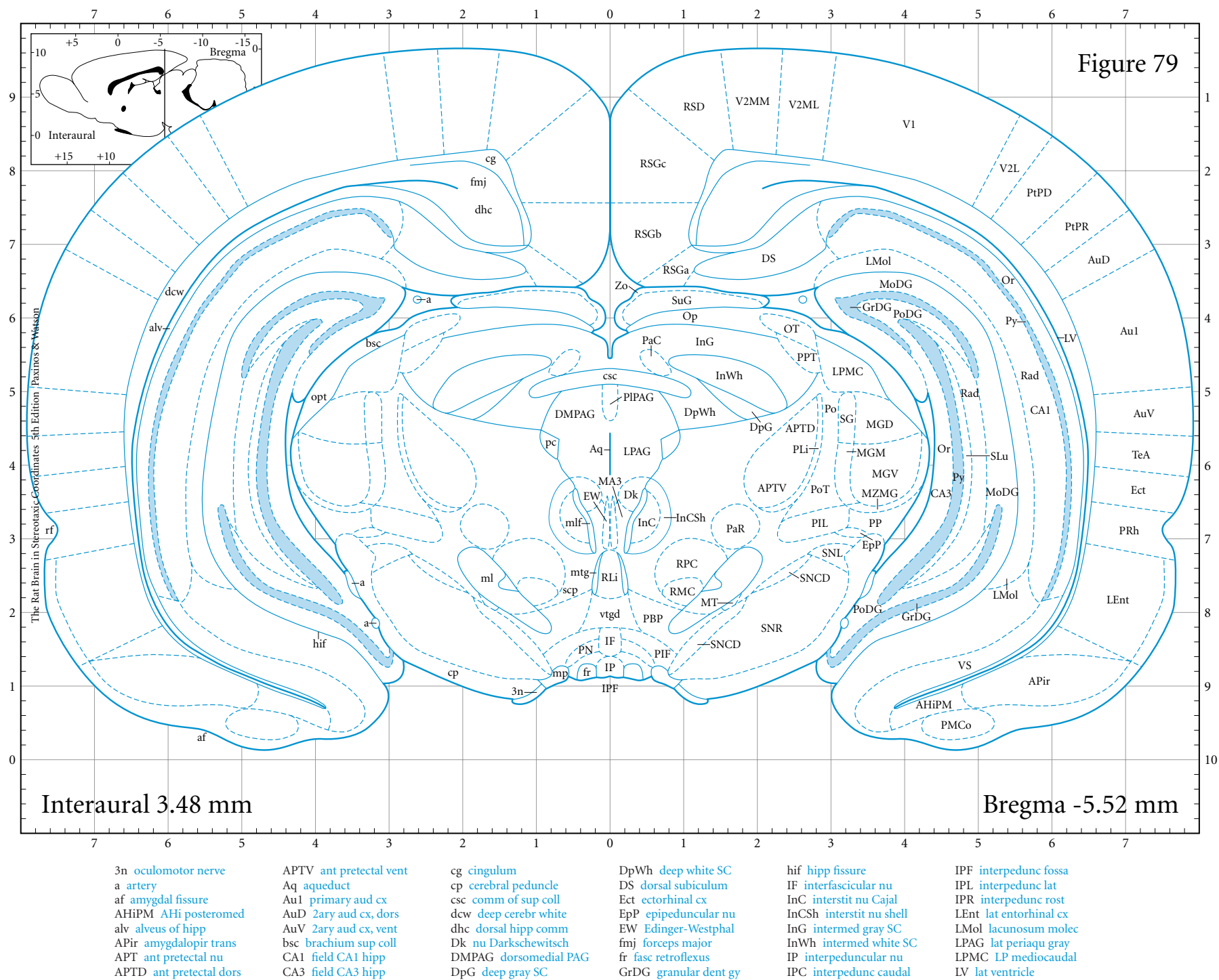
RLi rost linear raphe  
RMC red nu magnocell  
RPC red nu parvicell  
RSD retrosple dysgran  
RSGb RSG, b region  
RSGc RSG, c region  
scp sup cerebellar ped  
SG supragenice th nu

SLu stratum lucidum  
SNCD SN compact dors  
SNL subst nigra lat  
SNR subst nigra retic  
SuG superfic gray SC  
TeA temporal assocn  
V1 primary visual  
V2ML V2 cx, mediatol

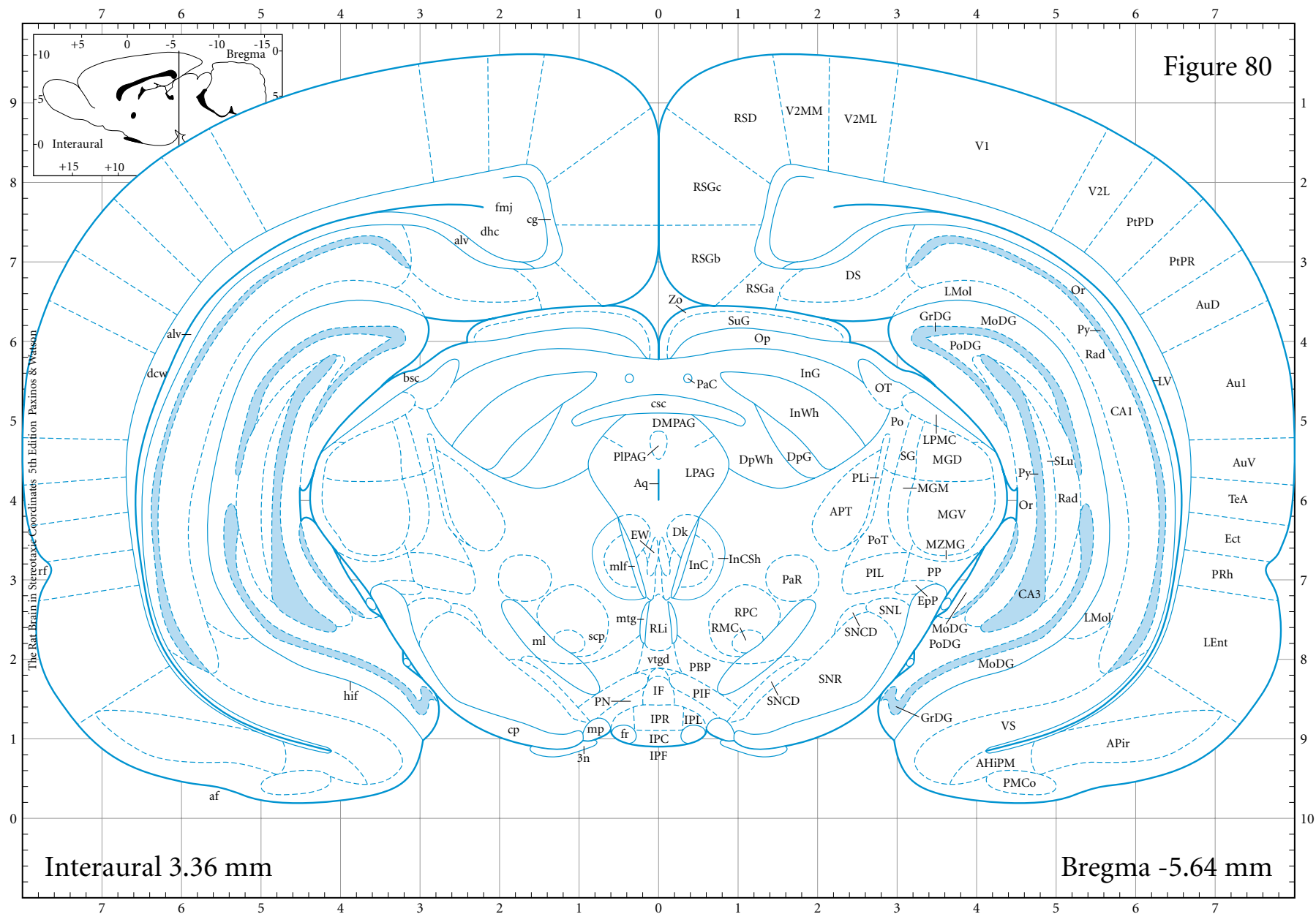
V2MM V2 cx, mediomed  
VLG vent lat genic nu  
VS ventral subiculum  
vtgd vent teg decussn  
Zo zonal layer SC





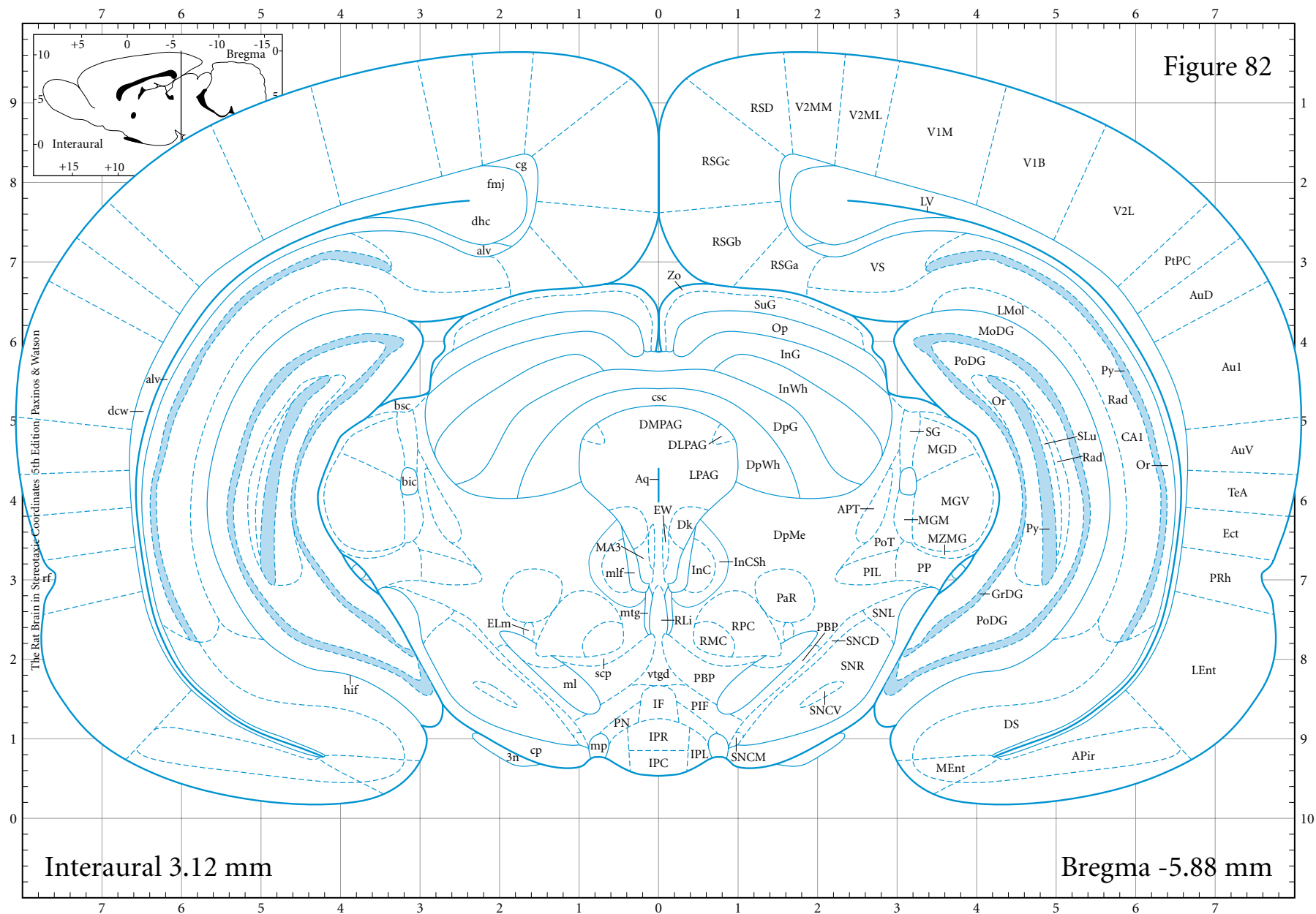


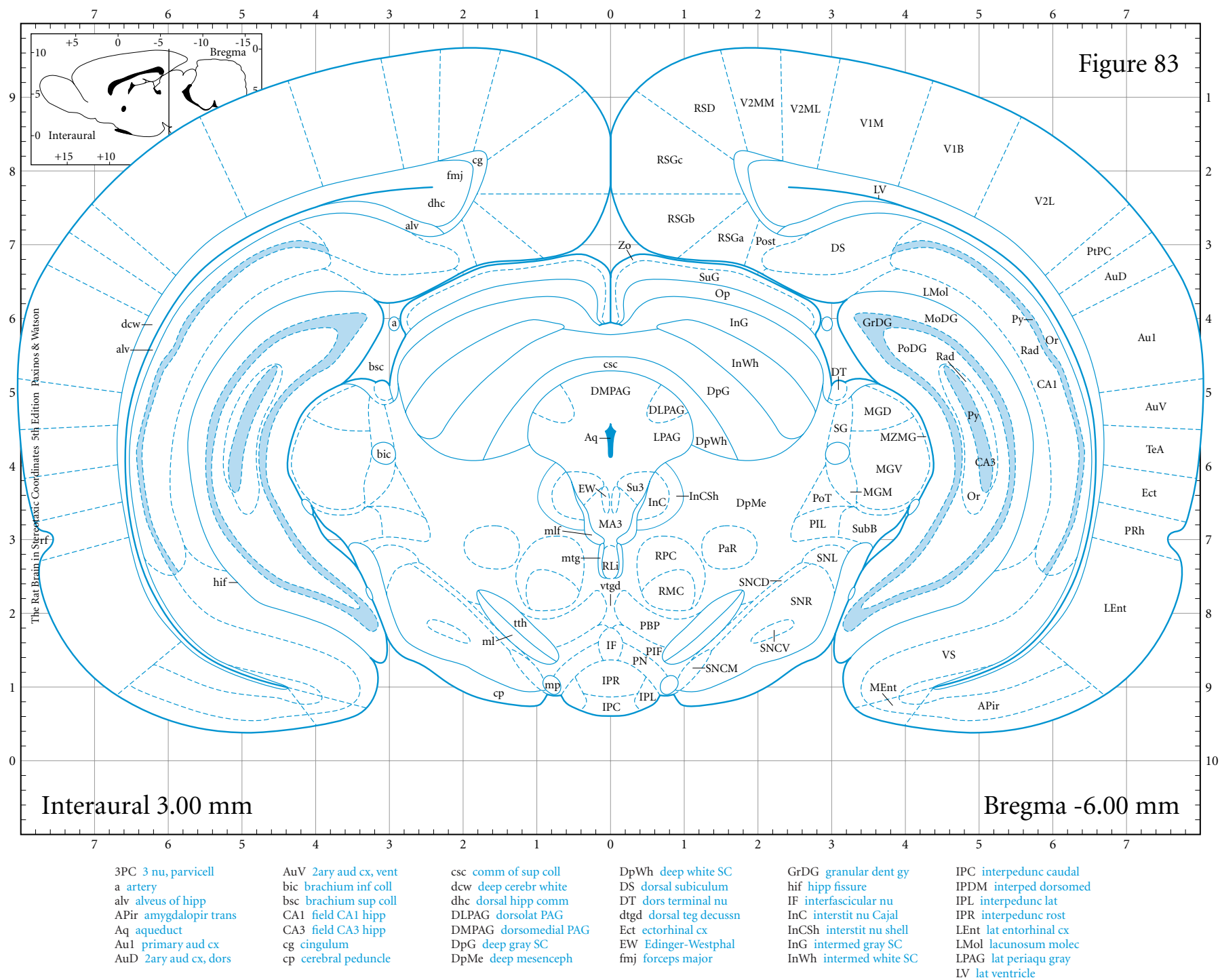
MA3 medial acc oculom	MT med terminal nu	PaR parabrual nu	PN paranigral nu	PtPR parietal postrost	RSGa RSG, a region	SNR subst nigra retic	vtgd vent teg decussn
MGD med genic dorsal	mtg mammilloteg tr	PBP parabrach pigment	Po post thalamic nu	Py pyramidal cells	RSGB RSG, b region	SuG superfic gray SC	Zo zonal layer SC
MGM med genic medial	MZMG marg zn med genic	pc posterior comm	PoDG polymorph dent gy	Rad radiatum layer	RSgc RSG, c region	TeA temporal assocn	
MGV med genic ventral	Op optic n layer SC	PIF parainterfascic nu	PoT post th nu triang	rf rhinal fissure	scp sup cerebellar ped	V1 primary visual	
ml medial lemniscus	opt optic tract	PIL post intralam th nu	PP peripeduncular nu	RLi rost linear raphe	SG supragenice th nu	V2L V2, lateral	
mlf med long fasc	Or oriens layer hipp	PLi post limitans th nu	PPT post pretectal nu	RMC red nu magnocell	SLu stratum lucidum	V2ML V2 cx, mediolat	
MoDG molecular dent gy	OT nu of optic tract	PIPAG pliolglial PAG	PRh perirhinal cx	RPC red nu parvicell	SNCD SN compact dors	V2MM V2 cx, mediodors	
mp mammillary ped	PaC paracommissural	PMCo postmed cort am	PtPD parietal postdors	RSD retrosple dysgran	SNL subst nigra lat	VS ventral subiculum	





V2L V2, lateral  
V2ML V2 cx, mediolat  
V2MM V2 cx, mediomed  
VS ventral subiculum  
vtgd vent teg decussn  
Zo zonal layer SC







V1B V1, binocular  
V1M V1, monocular  
V2L V2, lateral  
V2ML V2 cx, mediolat  
V2MM V2 cx, mediomed  
VS ventral subiculum  
vtgd vent teg decussn  
Zo zonal layer SC

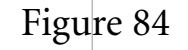
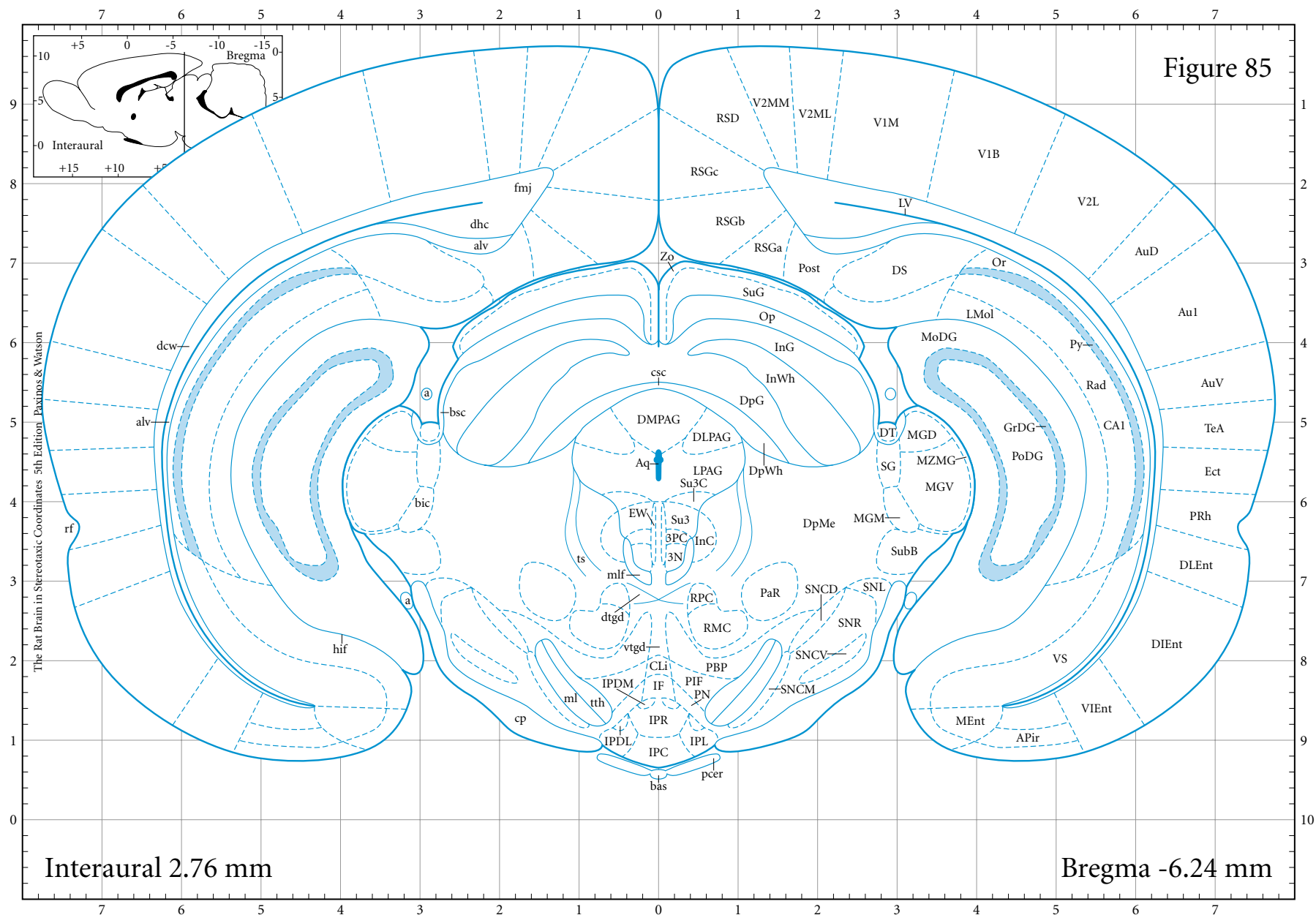


Figure 85



3N oculomotor nu  
3PC 3 nu, parvicell  
a artery  
alv alveus of hipp  
APir amygdalopir trans  
Aq aqueduct  
Au1 primary aud cx  
AuD 2ary aud cx, dors

AuV 2ary aud cx, vent  
bas basilar artery  
bic brachium inf coll  
bsc brachium sup coll  
CA1 field CA1 hipp  
cg cingulum  
CLi caud linear raphe  
cp cerebral peduncle

csc comm of sup coll  
dcw deep cerebell white  
dhc dorsal hipp comm  
DIEnt dors int entorh cx  
DLEnt dorsolat entorh cx  
DLPAG dorsolat PAG  
DMPAG dorsomedial PAG  
DpG deep gray SC

DpMe deep mesenceph  
DpWh deep white SC  
DS dorsal subiculum  
DT dors terminal nu  
dtgd dorsal teg decuss  
vtgd ventral teg decuss  
CLi caud linear raphe  
IF interfascicular nu  
PIF perirhinal nu  
PN perirhinal nu  
IPDL interpedunc lat  
IPDL interpedunc lat

GrDG granular dent gy  
hif hipp fissure  
IF interfascicular nu  
InC interstit nu Cajal  
InG intermed gray SC  
InWh intermed white SC  
IPC interpedunc caudal  
IPDL interpedunc lat

IPDM interped dorsomed  
IPL interpedunc lat  
IPR interpedunc rost  
LMol lacunosum molec  
LPAG lat periaqu gray  
LV lat ventricle

V1B V1, binocular  
V1M V1, monocular  
V2L V2, lateral  
V2ML V2 cx, mediat  
V2MM V2 cx, mediomed  
VEnt vent int entorh  
VS ventral subiculum  
vtgd vent teg decussn  
Zo zonal layer SC

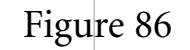
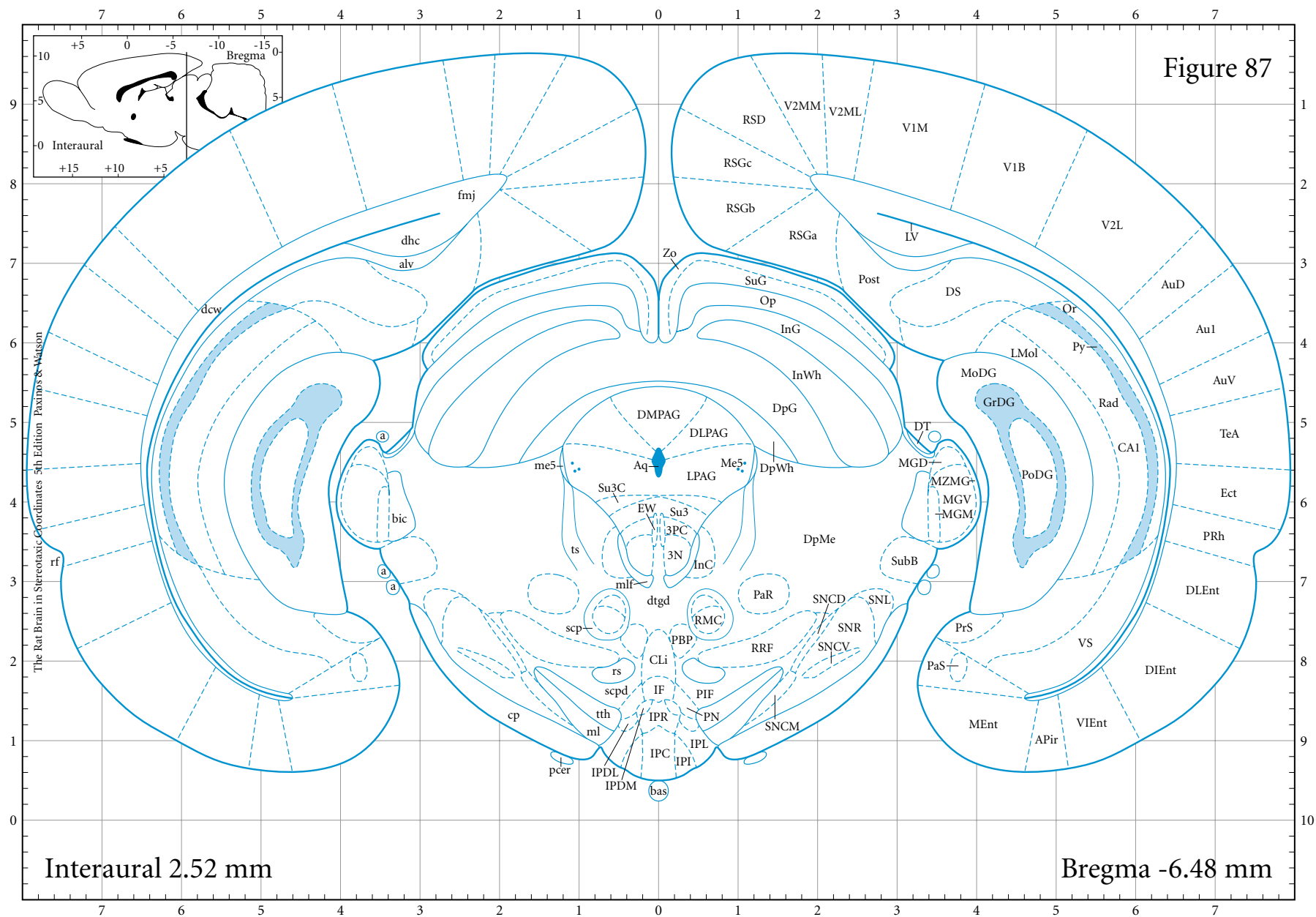




Figure 87



Interaural 2.52 mm

Bregma -6.48 mm

3N oculomotor nu  
3PC 3 nu, parvicell  
a artery  
alv alveus of hipp  
APir amygdalopir trans  
Aq aqueduct  
Au1 primary aud cx  
AuD 2ary aud cx, dors

AuV 2ary aud cx, vent  
bas basilar artery  
BIC nu brach inf coll  
bic brachium inf coll  
CA1 field CA1 hipp  
CLi caud linear raphe  
cp cerebral peduncle  
dcw deep cerebr white

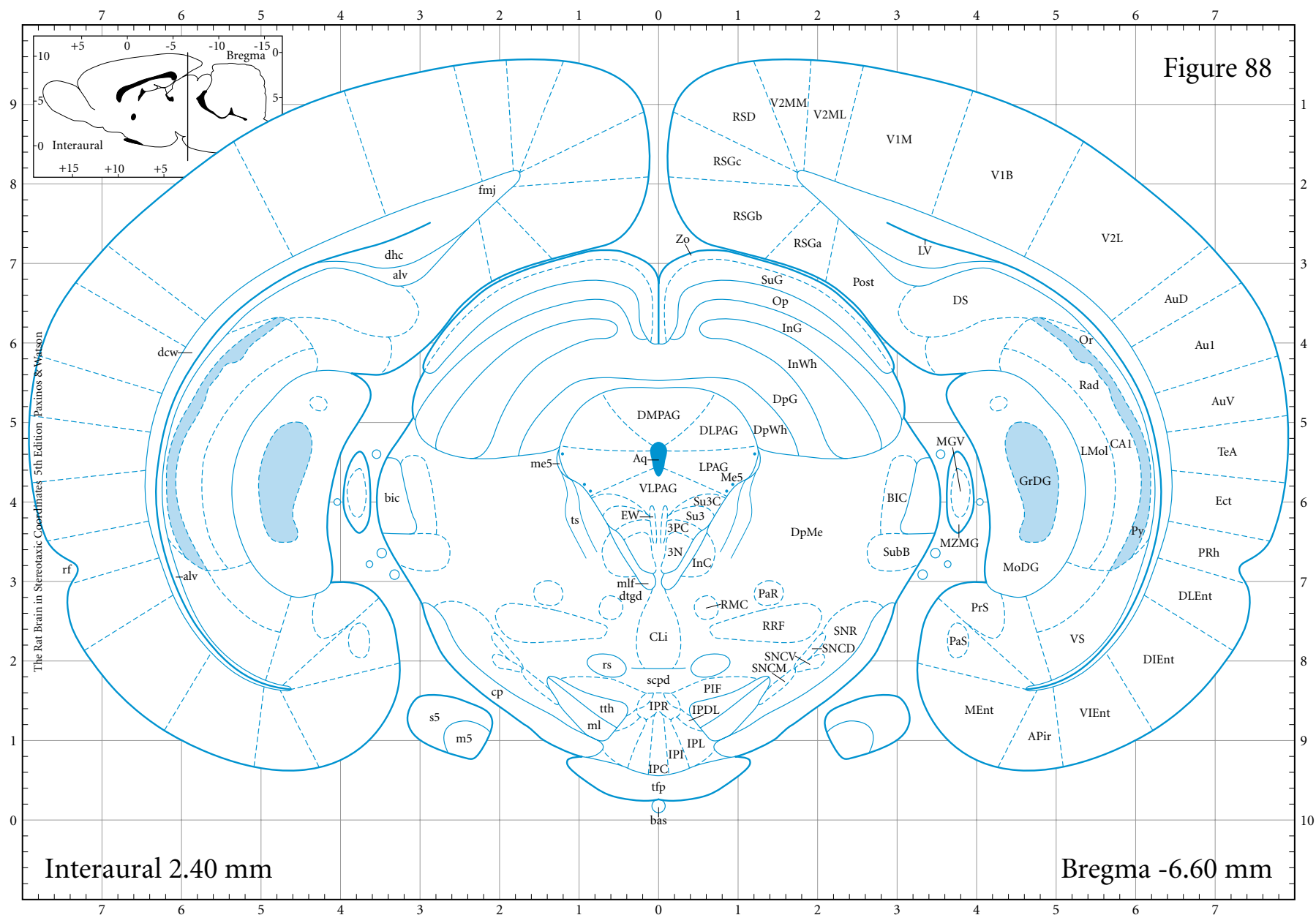
dhc dorsal hipp comm  
DIEnt dors int entorh cx  
DLEnt dorsolat entorh cx  
DLPAG dorsolat PAG  
DMPAG dorsomedial PAG  
DpG deep gray SC  
DpMe deep mesenceph  
DpWh deep white SC

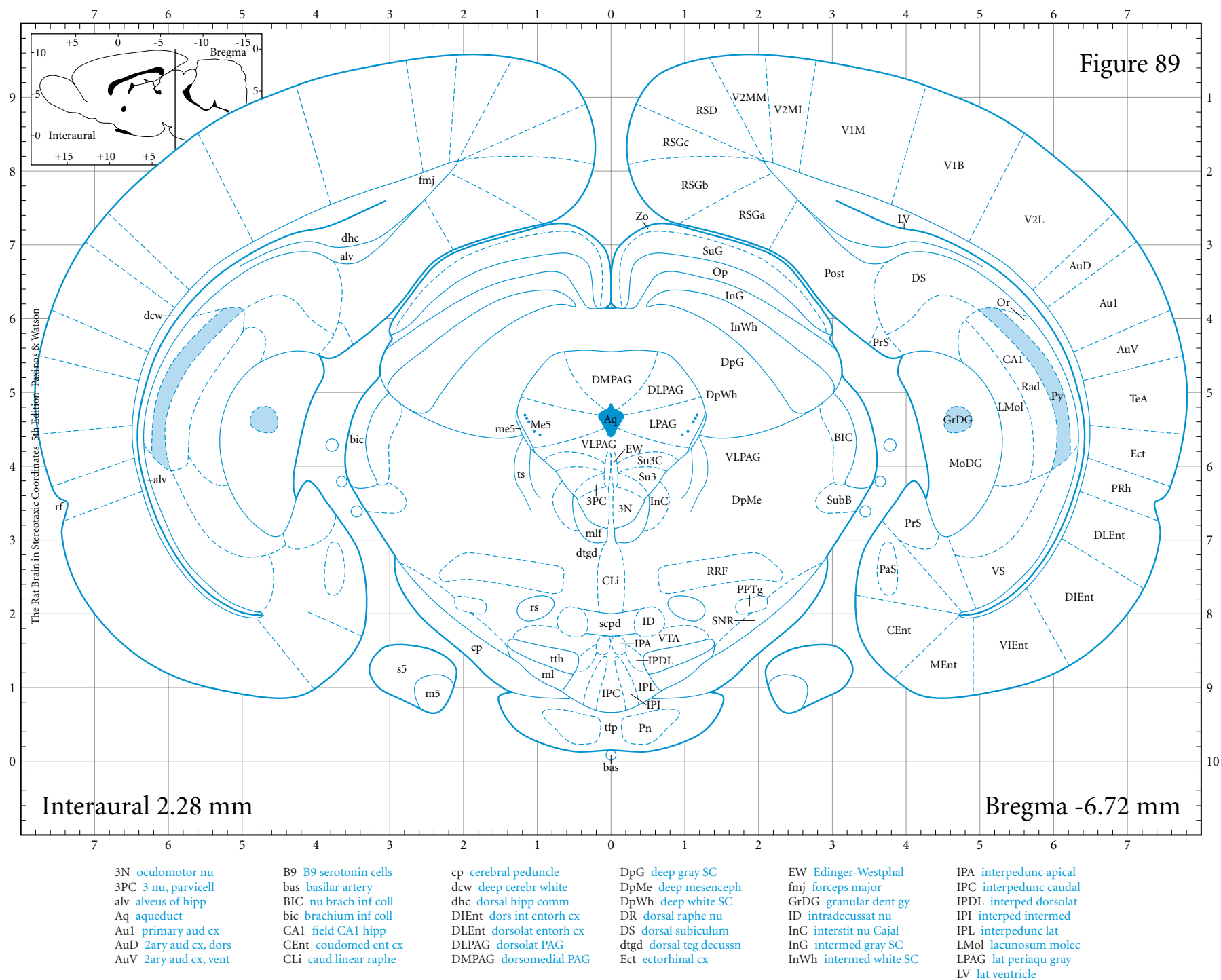
DS dorsal subiculum  
DT dors terminal nu  
dtgd dorsal teg decussn  
Ect ectorhinal cx  
EW Edinger-Westphal  
fmj forceps major  
IF interfascicular nu

InC interstit nu Cajal  
InG intermed gray SC  
InWh intermed white SC  
IPC interpedunc caudal  
IPDL interped dorsolat  
IPDM interped dorsomed  
IPI interped intermed  
IPL interpedunc lat

IPR interpedunc rost  
LMol lacunosum molec  
LPAG lat periaqu gray  
LV lat ventricle

VS ventral subiculum  
Zo zonal layer SC





V2ML V2 cx, mediolat  
V2MM V2 cx, mediodmed  
VIEnt vent int entorh  
VS ventral subiculum  
VTA vent tegment area  
Zo zonal layer SC

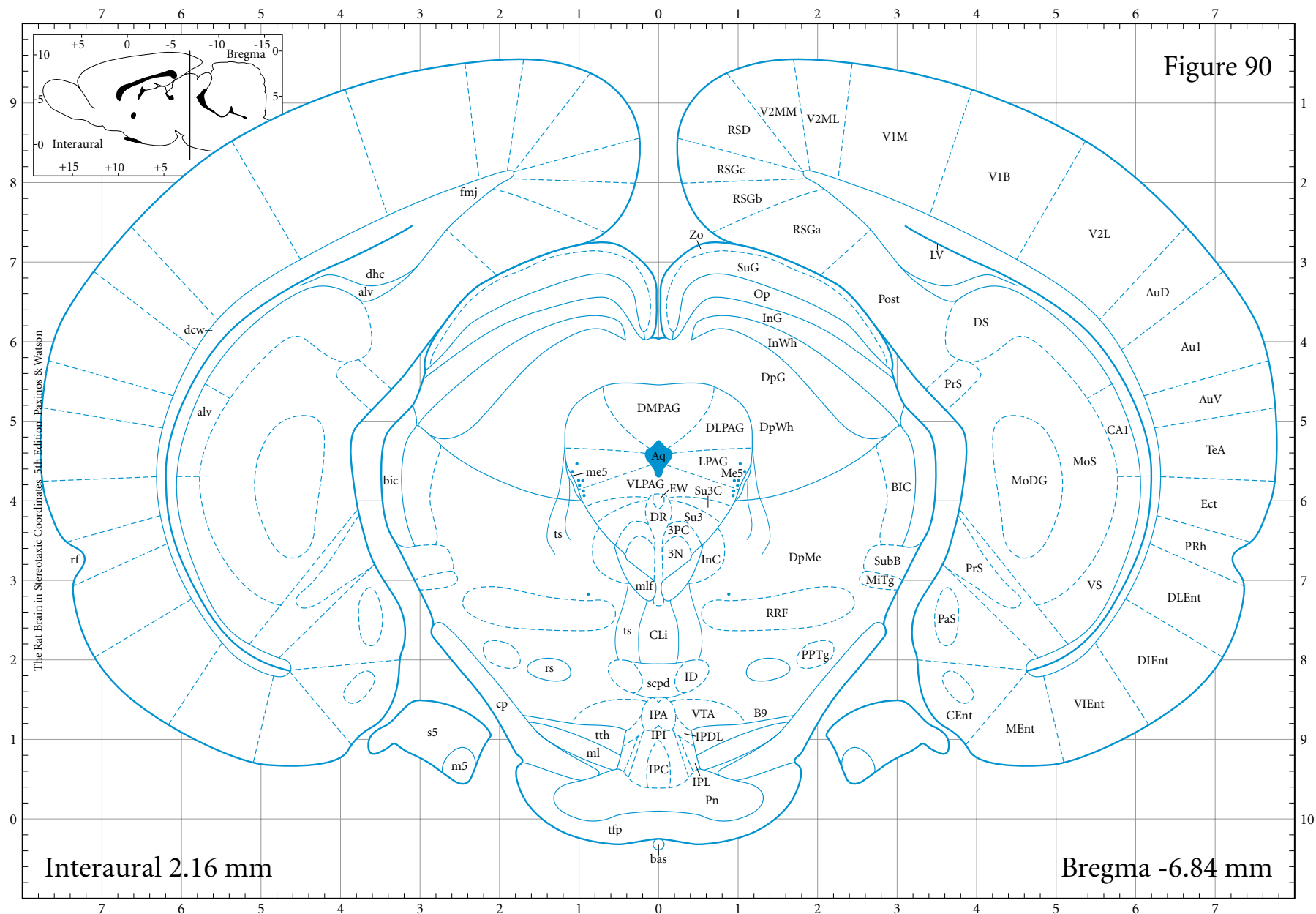
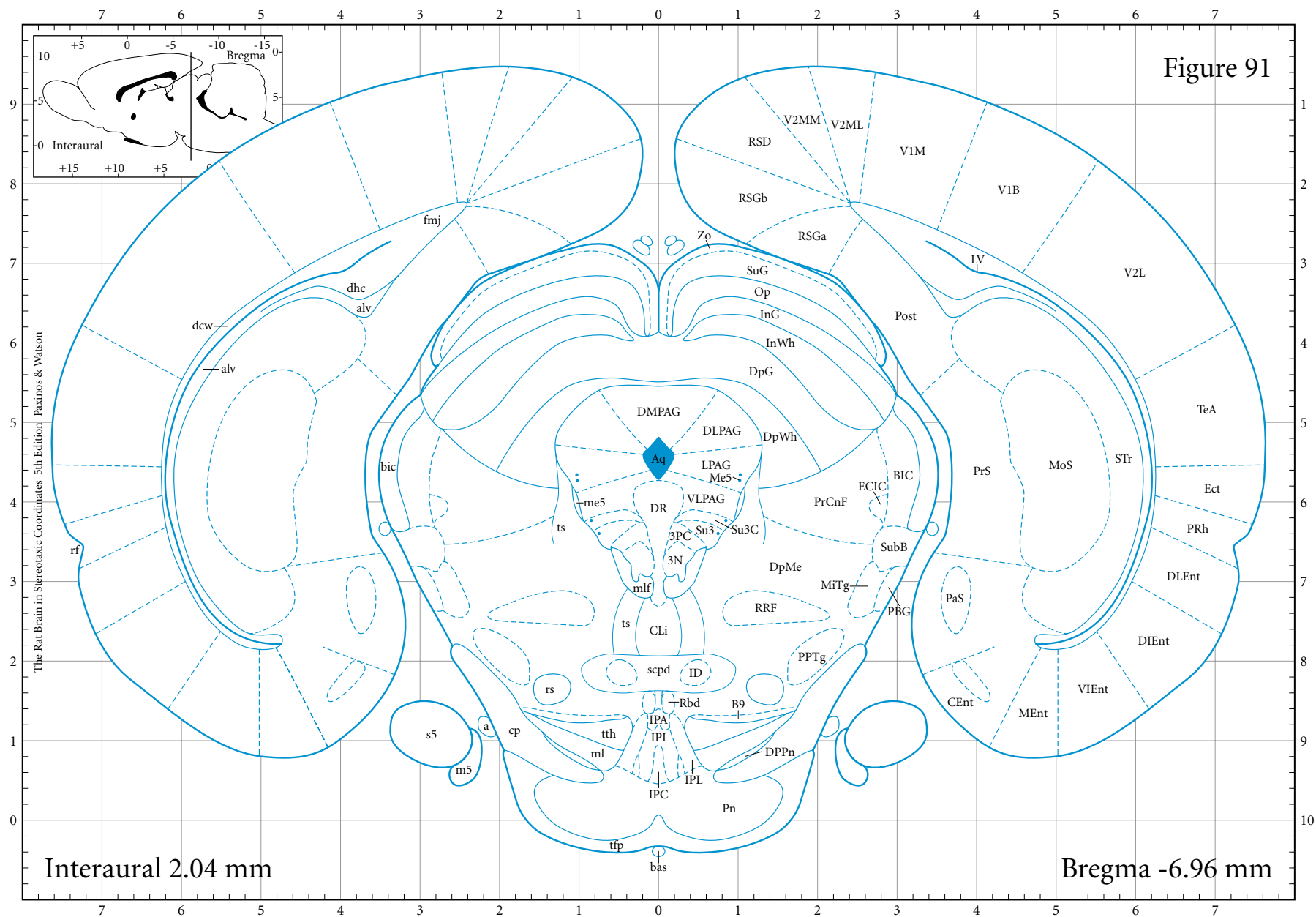


Figure 91



3N oculomotor nu  
3PC 3 nu, parvicell  
4N trochlear nu  
4Sh trochlear shell  
a artery  
alv alveus of hipp  
Aq aqueduct

B9 B9 serotonin cells  
bas basilar artery  
BIC nu brach inf coll  
bic brachium inf coll  
CEnt coudomed ent cx  
CLi caud linear raphe  
cp cerebral peduncle

dcw deep cerebr white  
dhc dorsal hipp comm  
DIEnt dors int entorh cx  
DLEnt dorsolat entorh cx  
DLPAG dorsolat PAG  
DMPAG dorsomedial PAG  
DpG deep gray SC

DpMe deep mesenceph  
DPPn dors ped pont nu  
DpWh deep white SC  
DR dorsal raphe nu  
DRD dorsal raphe dors  
ECIC ext cx inf coll  
Ect ectothinal cx

fmj forceps major  
ID intradecussat nu  
InG intermed gray SC  
InWh intermed white SC  
IPA interpedunc apical  
ECIC ext cx inf coll  
IPI interped intermed

IPL interpedunc lat  
ll lat lemniscus  
LPAG lat periaqu gray  
LV lat ventricle

m5 motor root 5n  
mcp mid cerebellar ped  
Me5 mesenceph 5 nu  
me5 mesenceph 5 tr  
MEnt medial entorhinal  
MiTg microcell teg nu  
ml medial lemniscus  
mlf med long fasc

MoS molec layer subic  
Op optic n layer SC  
PaS parasubiculum  
PBG parabigeminal nu  
PiSt pineal stalk  
PMnR paramedian raphe  
Pn pontine nuclei  
Post postsubiculum

PPTg pedunculo pont teg  
PrCnF precuneiform area  
PRh perirhinal cx  
PrS presubiculum  
Rbd rhabdoid nu  
rf rhinal fissure  
RRF retrorubral field  
rs rubrospinal tract

RSD retrosple dysgran  
RSGa RSG, a region  
RSGb RSG, b region  
s5 sensory root of 5n  
scpd scp descend limb  
STr subiculum trans  
Su3 supra3 periaq gray  
Su3C supra3 cap

SubB subbrachial nu  
SuG superfic gray SC  
TeA temporal assocn  
tfp trans fibers pons  
ts tectospinal tract  
tth trigeminothal tr  
v vein  
V1B V1, binocular

V1M V1, monocular  
V2L V2, lateral  
V2ML V2 cx, mediat  
V2MM V2 cx, medimed  
VEnt vent int entorh  
VLPAG ventrolat PAG  
Zo zonal layer SC

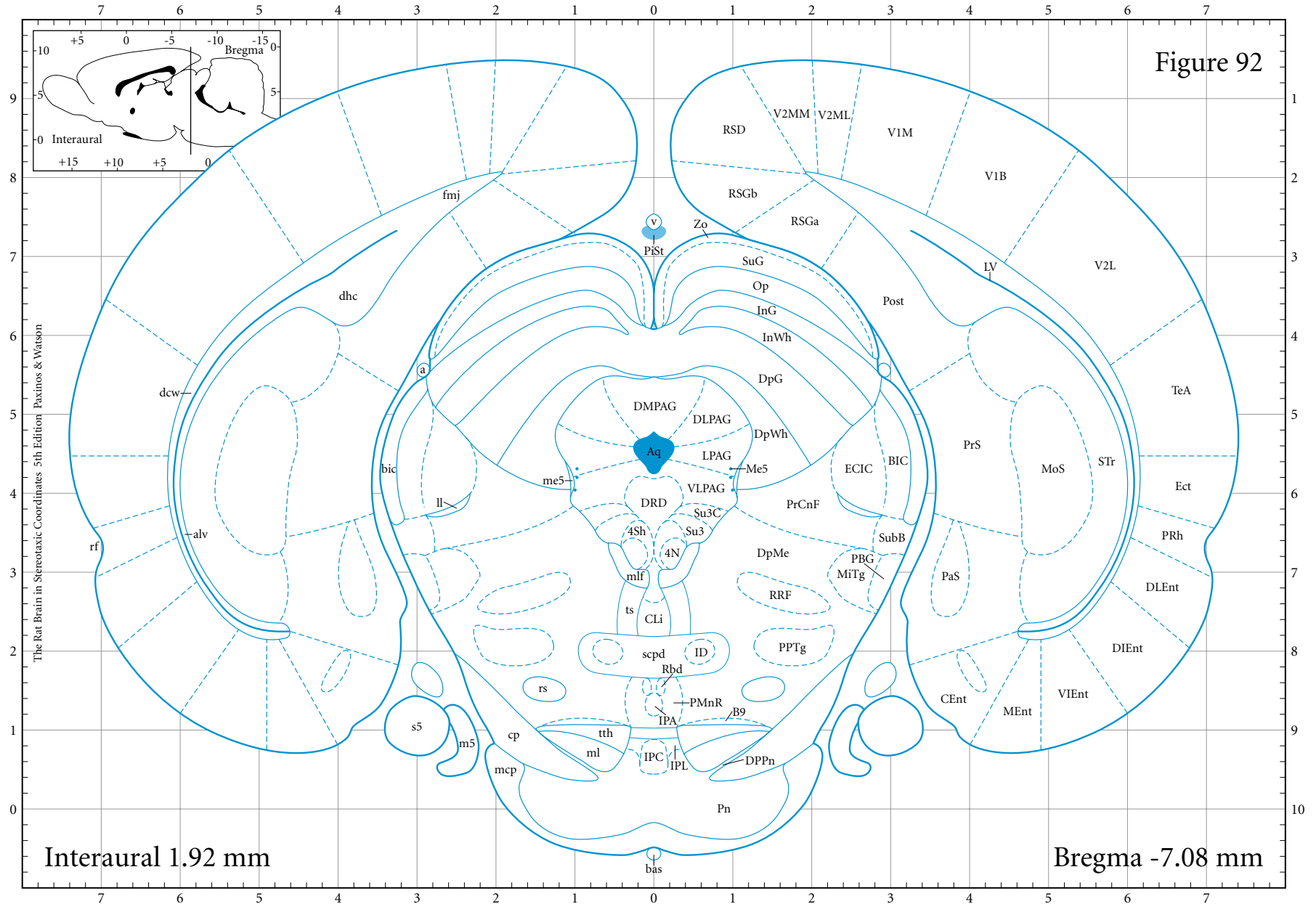
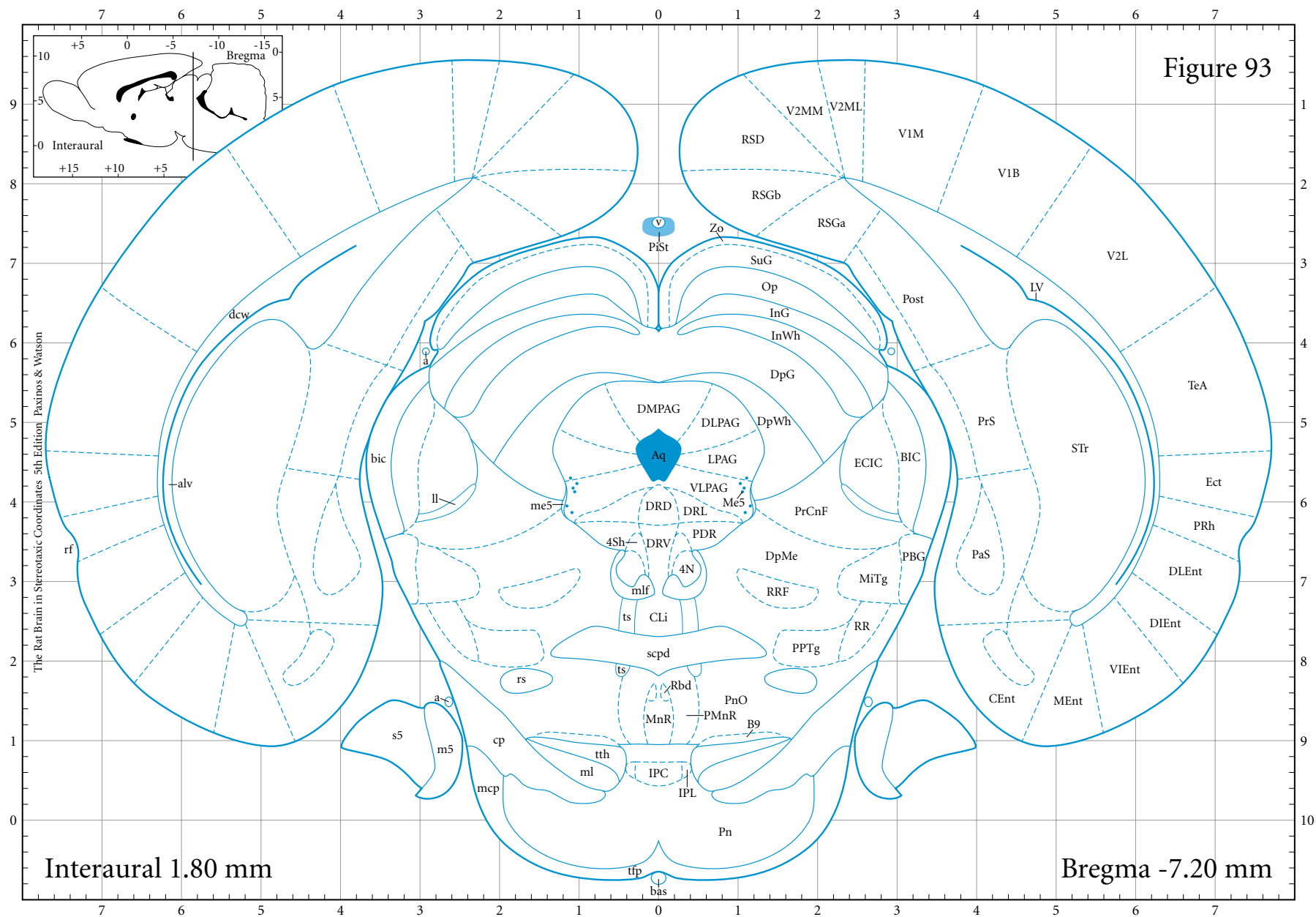




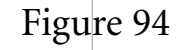
Figure 93



- |                     |                       |                          |                          |                        |                        |
|---------------------|-----------------------|--------------------------|--------------------------|------------------------|------------------------|
| 1 layer 1 cortex    | 5b layer 5b cortex    | BIC nu brach inf coll    | DLEnt dorsolat entorh cx | DRL dorsal raphe lat   | IPC interpedunc caudal |
| 2 layer 2 cortex    | 6 layer 6 cortex      | bic brachium inf coll    | DLPAG dorsolat PAG       | DRV dorsal raphe vent  | IPL interpedunc lat    |
| 3/4 layers 3&4 cx   | a artery              | CEnt coudomed ent cx     | DMPAG dorsomedial PAG    | ECIC ext cx inf coll   | lf long fasc pons      |
| 4N trochlear nu     | alv alveus of hipp    | CLi caud linear raphe    | DpG deep gray SC         | Ect ectorhinal cx      | ll lat lemniscus       |
| 4n trochlear nerve  | Aq aqueduct           | cp cerebral peduncle     | DpMe deep mesenceph      | fmj forceps major      | LPAG lat periaqu gray  |
| 4Sh trochlear shell | B9 B9 serotonin cells | dcw deep cerebr white    | DpWh deep white SC       | InG intermed gray SC   | LV lat ventricle       |
| 5a layer 5a cortex  | bas basilar artery    | DIEnt dors int entorh cx | DRD dorsal raphe dors    | InWh intermed white SC |                        |



V2L V2, lateral  
V2ML V2 cx, mediolat  
V2MM V2 cx, mediomed  
VIEnt vent int entorh  
VLPAG ventrolat PAG  
Zo zonal layer SC





m5 motor root 5n  
mcp mid cerebellar ped  
Me5 mesenceph 5 nu  
MEnt medial entorhinal  
MiTg microcell teg nu  
ml medial lemniscus  
mlf med long fasc  
MnR median raphe nu

Op optic n layer SC  
Pa4 paratrochlear nu  
PaS parasubiculum  
PBG parabigeminal nu  
PDR postdors raphe  
Pi pineal gland  
PMnR paramedian raphe  
Pn pontine nuclei  
PnO pontine retic oral

Post postsubiculum  
PPTg pedunculo pont teg  
PrCnF precuneiform area  
PRh perirhinal cx  
PrS presubiculum  
Rbd rhabdoid nu  
rf rhinal fissure  
RLi rost linear raphe  
RR retrorubral nu

rs rubrospinal tract  
RSD retrosple dysgran  
RSGa RSG, a region  
RSGb RSG, b region  
s5 sensory root of 5n  
scp sup cerebellar ped  
scpd scp descend limb  
SPTg subpedunc teg  
STr subiculum trans

SuG superfic gray SC  
TeA temporal assocn  
tfp trans fibers pons  
ts tectospinal tract  
tth trigeminothal tr  
v vein  
V1B V1, binocular  
V1M V1, monocular  
V2L V2, lateral

V2ML V2 cx, mediolat  
V2MM V2 cx, mediomed  
VEnt vent int entorh  
VLPAG ventrolat PAG  
Zo zonal layer SC

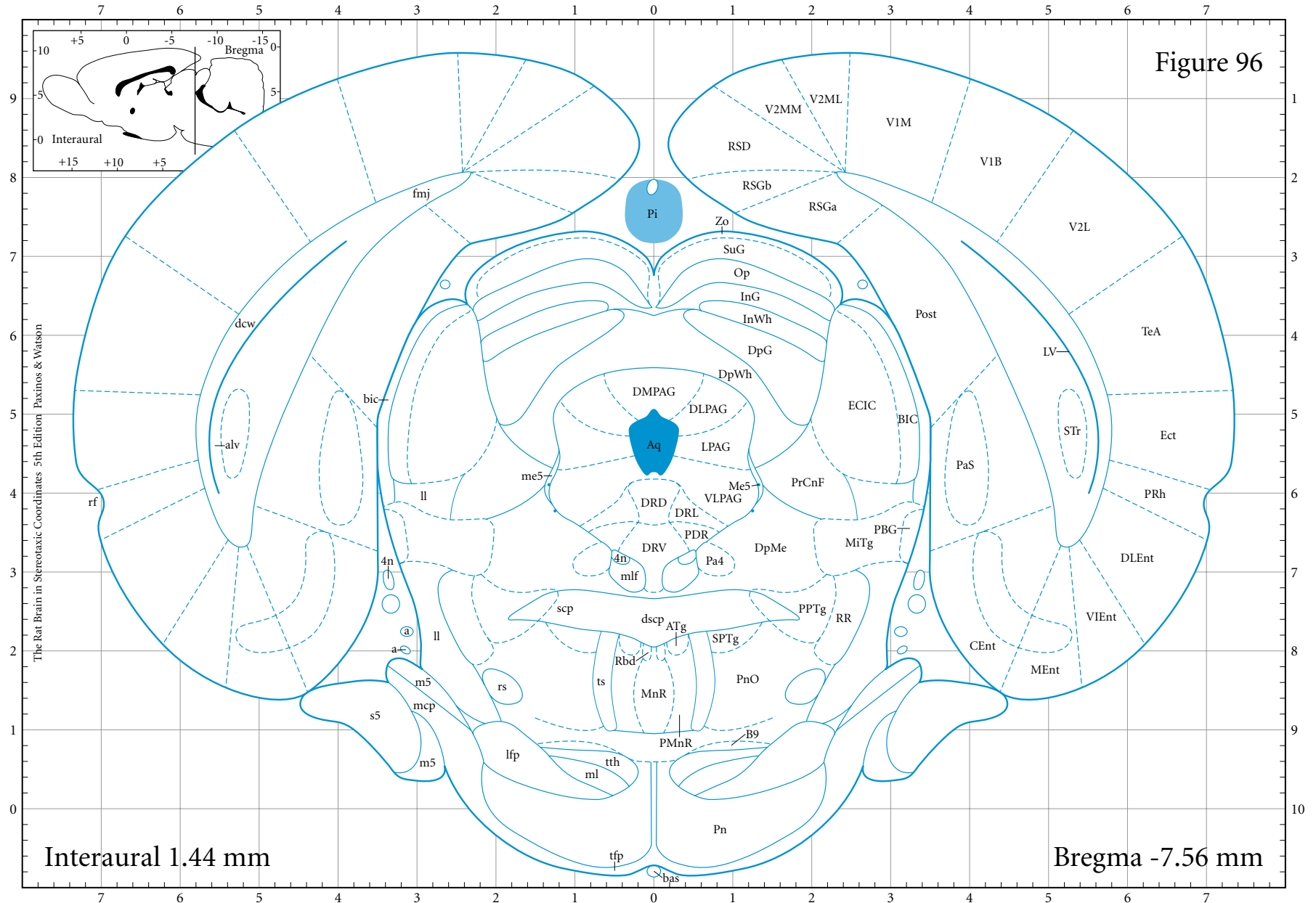
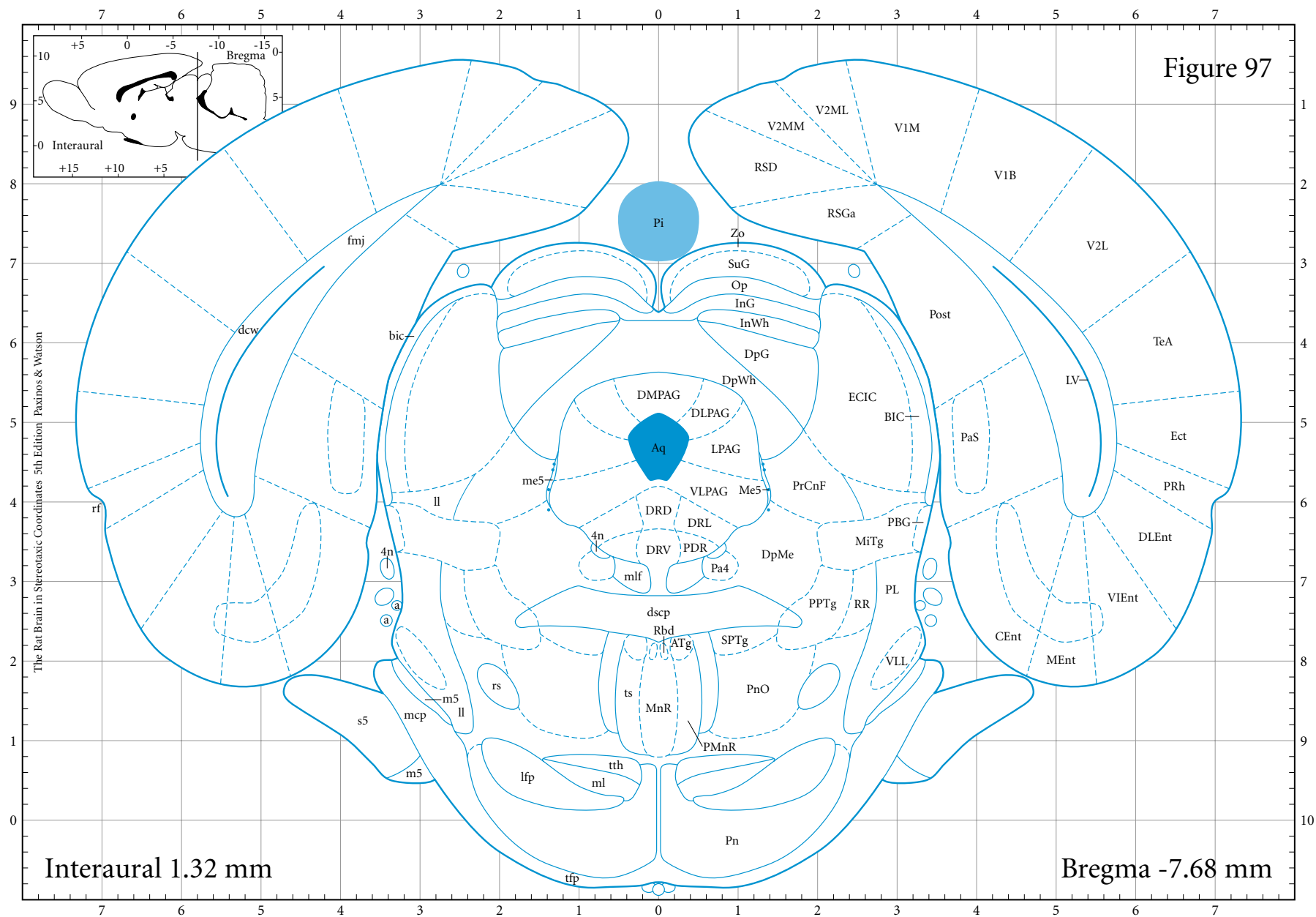


Figure 97



4n trochlear nerve  
a artery  
Aq aqueduct  
ATg ant tegmental nu  
bas basilar artery  
BIC nu brach inf coll  
bic brachium inf coll  
CEnt coudomed ent cx  
CIC central nu inf coll

cic comm of inf coll  
CnFI cuneiform interm  
CnFV cuneiform vent  
dcw deep cerebr white  
DLEnt dorsolat entorh cx  
DLPAG dorsolat PAG  
DMPAG dorsomedial PAG  
DpG deep gray SC  
DpMe deep mesenceph

DpWh deep white SC  
DRD dorsal raphe dors  
DRL dorsal raphe lat  
DRV dorsal raphe vent  
dscp decussation scp  
ECIC ext cx inf coll  
Ect ectorhinal cx  
ERS eprubrospinal nu  
fmj forceps major

InG intermed gray SC  
InWh intermed white SC  
lfp long fasc pons  
ll lat lemniscus  
LPAG lat periaqu gray  
LV lat ventricle

VIEnt vent int entorh  
VLL ventral nu lat lem  
VLPAG ventrolat PAG  
Zo zonal layer SC

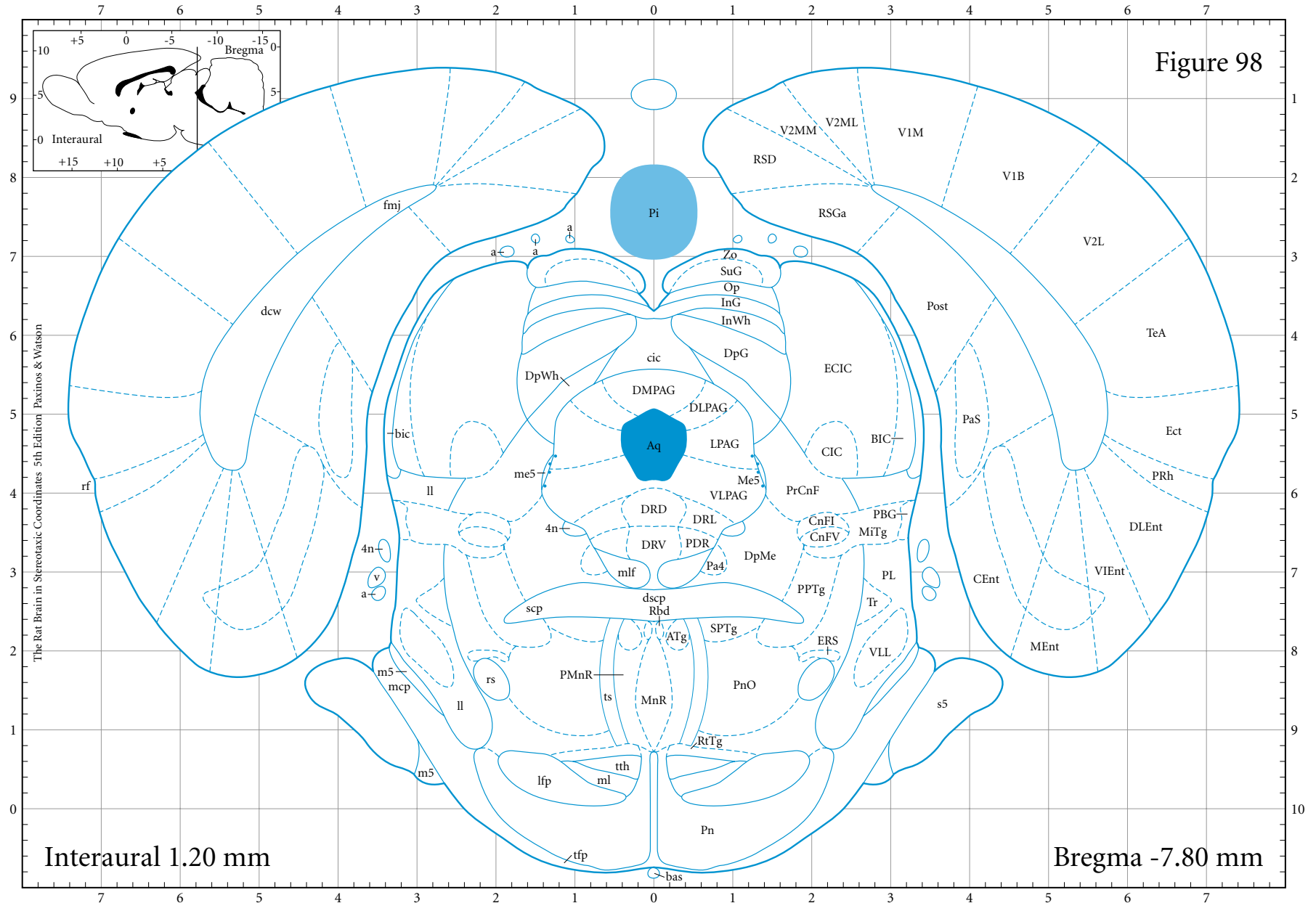
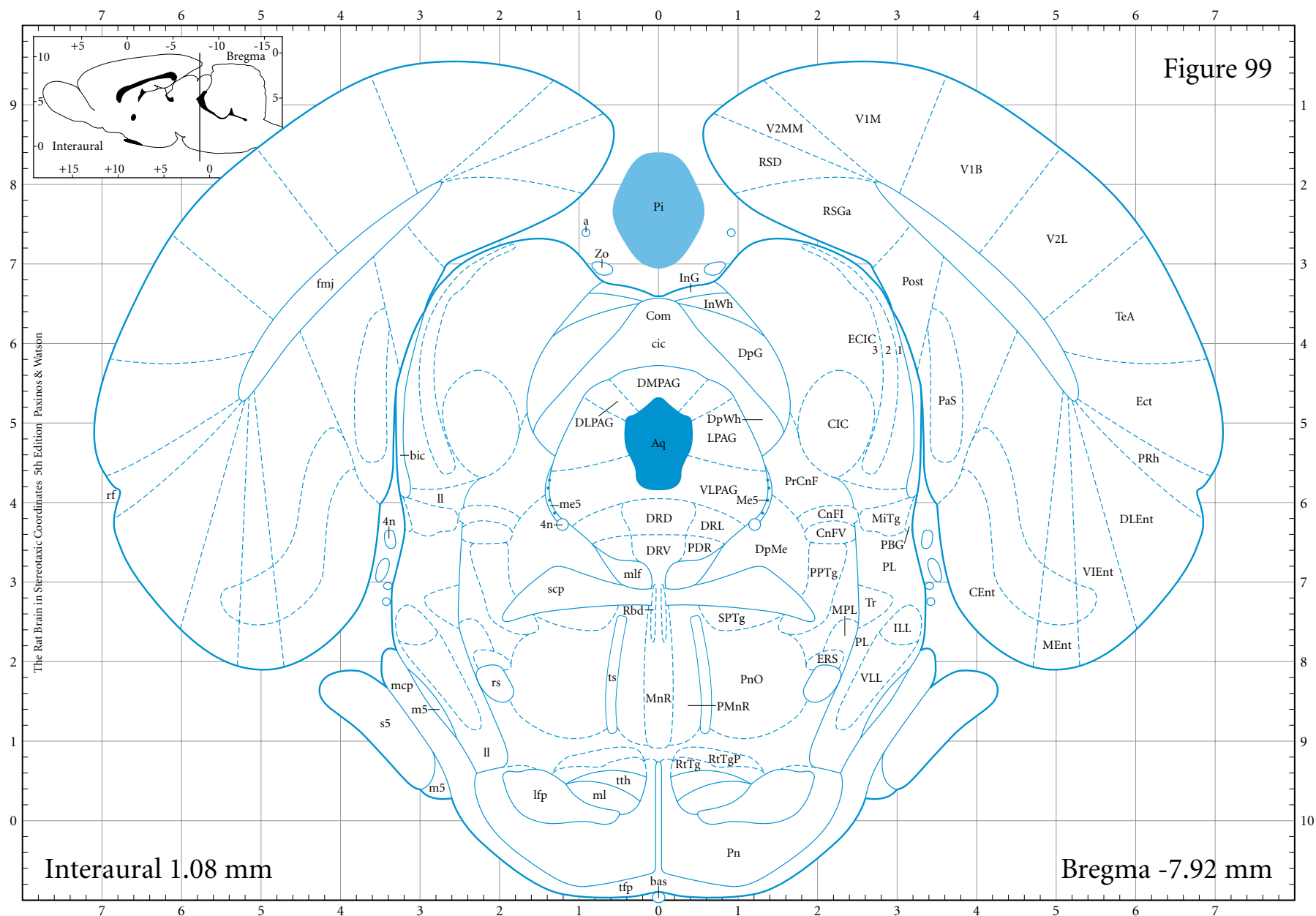


Figure 99



- |                       |                          |                       |                        |
|-----------------------|--------------------------|-----------------------|------------------------|
| 1 layer 1 cortex      | Cent coudomed ent cx     | DLPAG dorsolat PAG    | Ect ectorhinal cx      |
| 2 layer 2 cortex      | CIC central nu inf coll  | DMPAG dorsomedial PAG | ERS epirobrspinal nu   |
| 3 layer 3 cortex      | cic comm of inf coll     | DpG deep gray SC      | fmj forceps major      |
| 4n trochlear nerve    | cll comm of lat lem      | DpMe deep mesenceph   | ILL intermediate nu ll |
| a artery              | CnFI cuneiform interm    | DpWh deep white SC    | InG intermed gray SC   |
| Aq aqueduct           | CnFV cuneiform vent      | DRD dorsal raphe dors | InWh intermed white SC |
| B9 B9 serotonin cells | Com commiss nu IC        | DRL dorsal raphe lat  | lfp long fasc pons     |
| bas basilar artery    | DLEnt dorsolat entorh cx | DRV dorsal raphe vent | ll lat lemniscus       |
| bic brachium inf coll | DLL dorsal nu lat lem    | ECIC ext cx inf coll  | LPAG lat periaqu gray  |



m5 motor root 5n  
mcp mid cerebellar ped  
Me5 mesenceph 5 nu  
me5 mesenceph 5 tr  
MEnt medial entorhinal  
MiTg microcell teg nu  
ml medial lemniscus  
mlf med long fasc

MnR median raphe nu  
MPL med paralemniscal  
PaS parasubiculum  
PBG parabigeminal nu  
PDR postdors raphe  
Pi pineal gland  
PL paralemniscal nu  
PMnR paramedian raphe

Pn pontine nuclei  
PnO pontine retic oral  
Post postsubiculum  
PPTg pedunclopont teg  
PrCnF precuneiform area  
PRh perirhinal cx  
Rbd rhabdoid nu  
rf rhinal fissure

rs rubrospinal tract  
RSD retrosple dysgran  
RSGa RSG, a region  
RtTg reticulotegmental  
RtTgP reticuloteg pericen  
s5 sensory root of 5n  
scp sup cerebellar ped  
SPTg subpedunc teg

TeA temporal assocn  
tfp trans fibers pons  
Tr triangular nu  
ts tectospinal tract  
tth trigeminothal tr  
V1B V1, binocular  
V1M V1, monocular  
V2L V2, lateral

V2MM V2 cx, mediod  
VEnt vent int entorh  
VLL ventral nu lat lem  
VLPAG ventrolat PAG  
VTg vent tegment nu  
Zo zonal layer SC

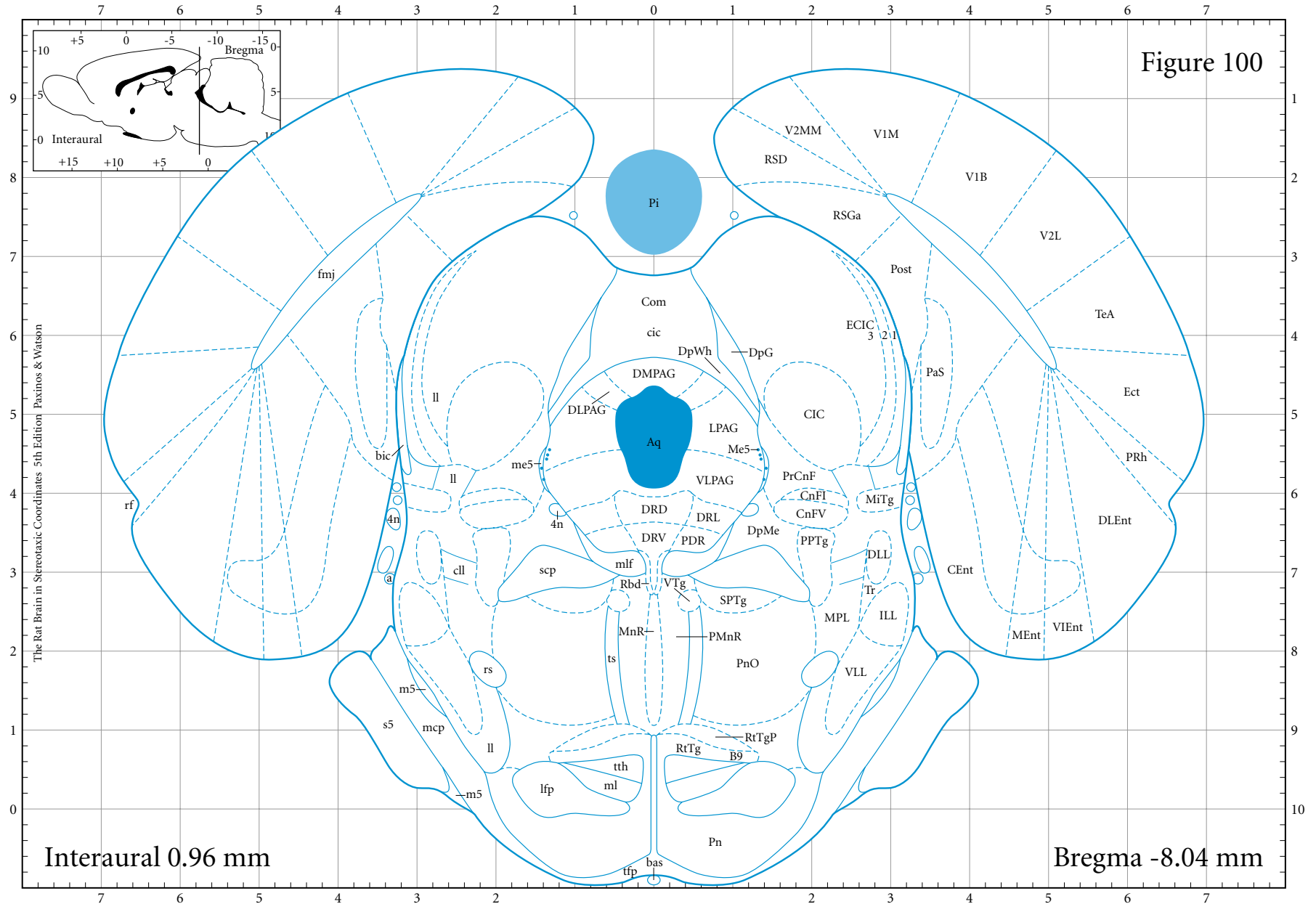
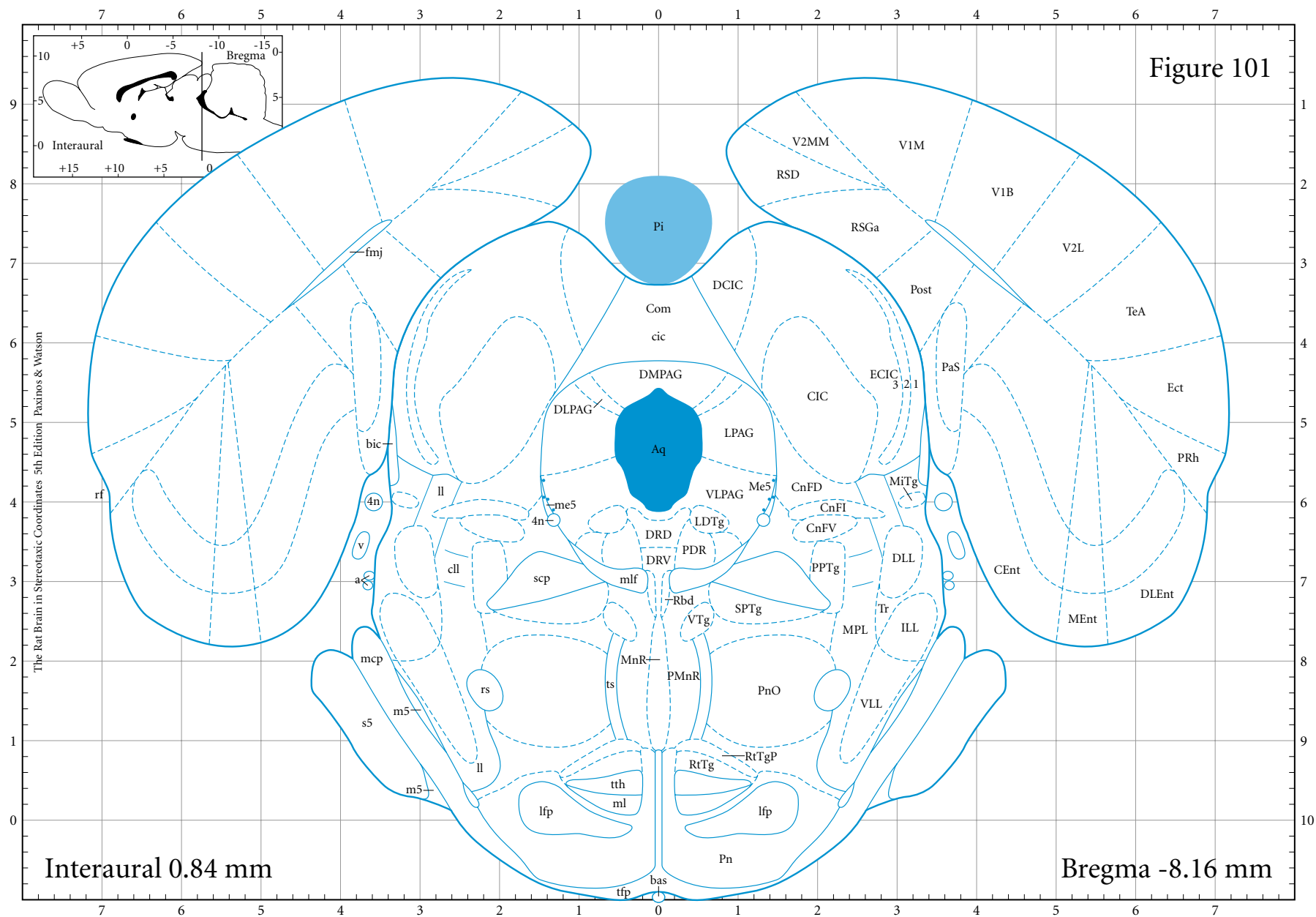


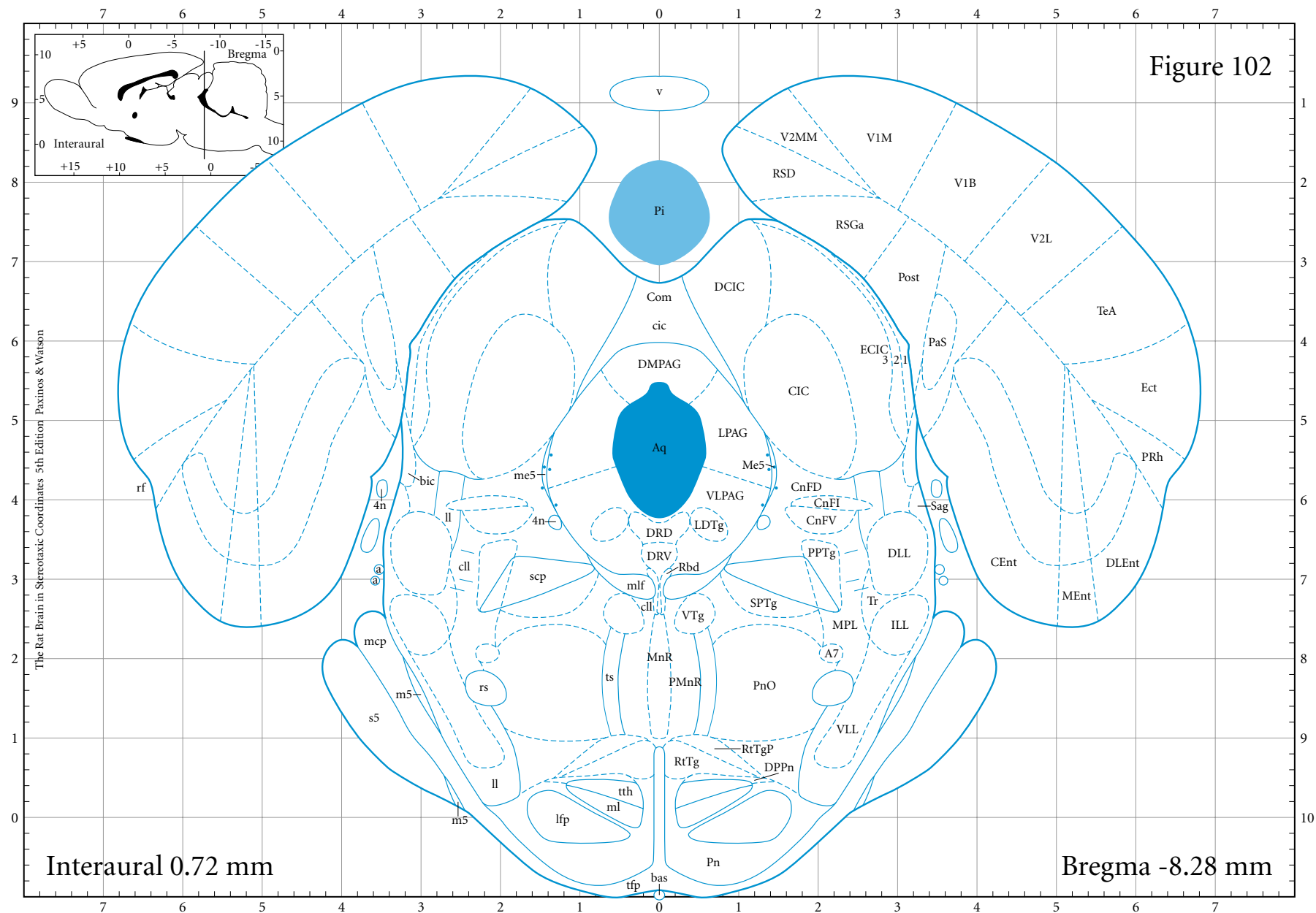


Figure 101



- |                       |                         |                          |                        |
|-----------------------|-------------------------|--------------------------|------------------------|
| 1 layer 1 cortex      | Cent coudomed ent cx    | DLEnt dorsolat entorh cx | fmj forceps major      |
| 2 layer 2 cortex      | CIC central nu inf coll | DLL dorsal nu lat lem    | ILL intermediate nu ll |
| 3 layer 3 cortex      | cic comm of inf coll    | DLPAG dorsolat PAG       | LDTg laterodorsal teg  |
| 4n trochlear nerve    | cil comm of lat lem     | DMPAG dorsomedial PAG    | lfp long fasc pons     |
| a artery              | CnFD cuneiform dors     | DPPn dorsal pedunc pont  | ll lat lemniscus       |
| A7 A7 noradr cells    | CnFI cuneiform intern   | DRD dorsal raphe dors    | LPAG lat periaqu gray  |
| Aq aqueduct           | CnFV cuneiform vent     | DRV dorsal raphe vent    |                        |
| bas basilar artery    | Com commiss nu IC       | ECIC ext cx inf coll     |                        |
| bic brachium inf coll | DCIC dorsal cx IC       | Ect ectorhinal cx        |                        |

VLL ventral nu lat lem  
VLPAG ventrolat PAG  
VTg vent tegment nu





m5 motor root 5n  
mcp mid cerebellar ped  
Me5 mesenceph 5 nu  
me5 mesenceph 5 tr  
MEnt medial entorhinal  
ml medial lemniscus  
mlf med long fasc  
MnR median raphe nu

MPL med paralemniscal  
PaS parasubiculum  
Pi pineal gland  
PLV perilemnisc vent  
PMnR paramedian raphe  
Pn pontine nuclei  
PnO pontine retic oral  
Post postsubiculum

PPTg pedunculo pont teg  
PRh perirhinal cx  
Rbd rhabdoid nu  
ReIC recess of inf coll  
rf rhinal fissure  
rs rubrospinal tract  
RSD retrosple dysgran  
RSGa RSG, a region

RtTg reticulotegmental  
RtTgP reticuloteg pericen  
s5 sensory root of 5n  
Sag sagulum nu  
scp sup cerebellar ped  
SPTg subpedunc teg  
TeA temporal assocn  
tfp trans fibers pons

Tr triangular nu  
ts tectospinal tract  
tth trigeminothal tr  
V1B V1, binocular  
V1M V1, monocular  
V2L V2, lateral  
V2MM V2 cx, mediomed  
VLL ventral nu lat lem

VLPAG ventrolat PAG  
VTg vent tegment nu

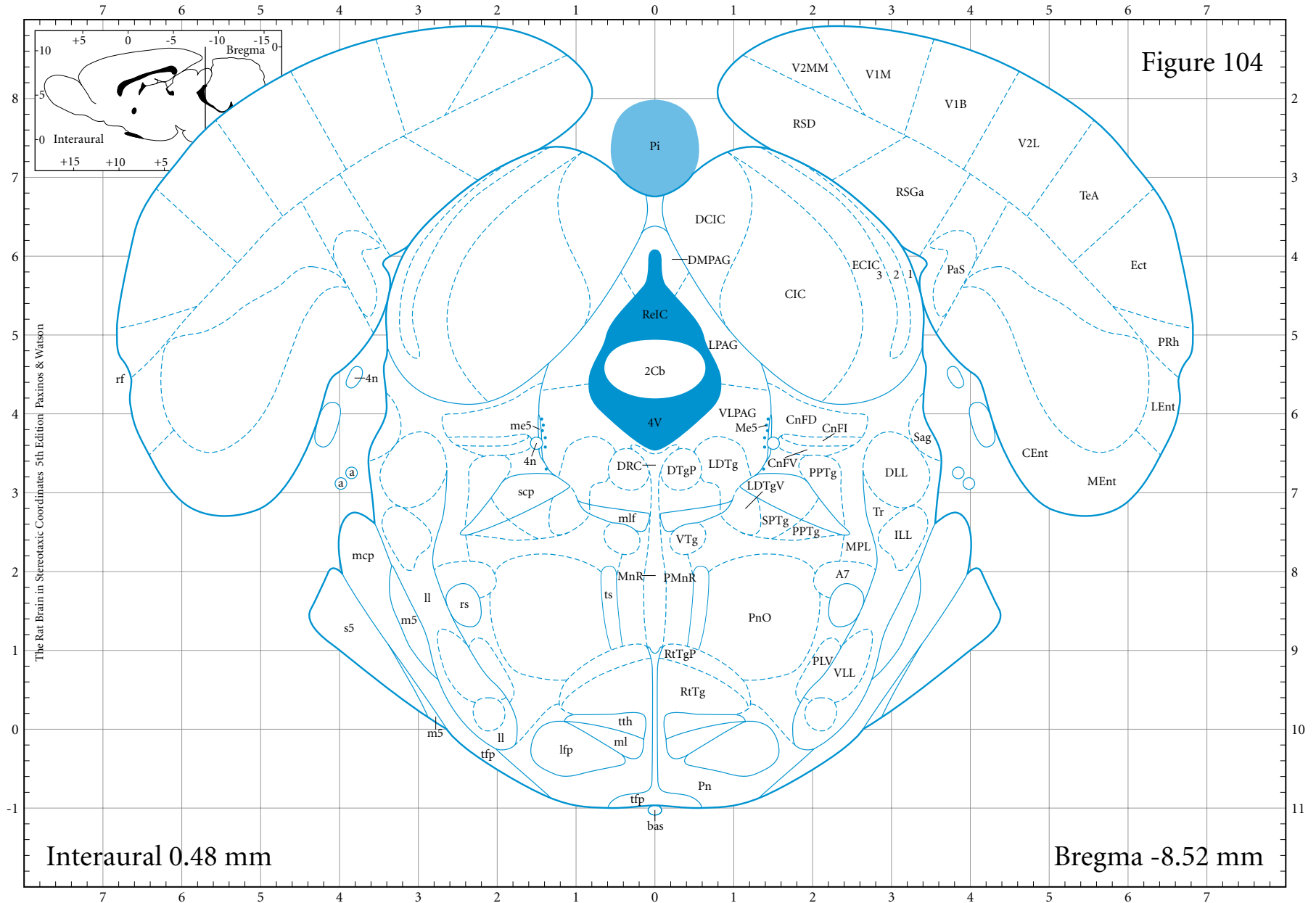
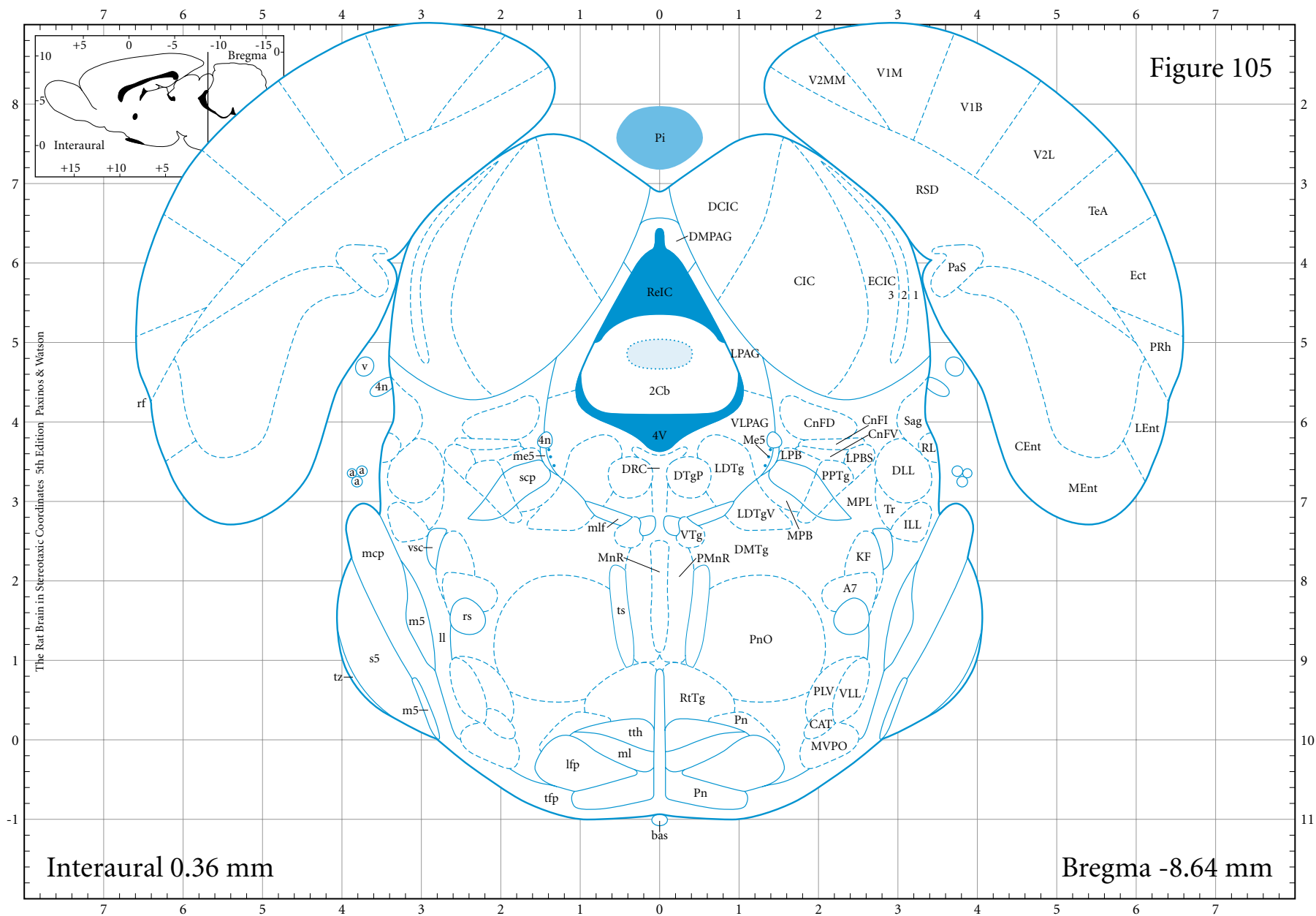


Figure 105



1 layer 1 cortex  
2 layer 2 cortex  
2/3Cb 2nd&3rd Cb lobes  
2Cb 2nd Cb lobule  
3 layer 3 cortex  
3Cb 3rd Cb lobule  
4/5Cb 4th&5th Cb lob

4n trochlear nerve  
4V 4th ventricle  
a artery  
A7 A7 noradr cells  
bas basilar artery  
CAT nu cent acoust tr  
CEnt coudomed ent cx

CG central gray  
CIC central nu inf coll  
CnFD cuneiform dors  
CnFI cuneiform interm  
CnFV cuneiform vent  
DCIC dorsal cx IC  
DLL dorsal nu lat lem

DMPAG dorsomedial PAG  
DMTg dorsomed teg area  
DRC dorsal raphe caud  
DTgP dors teg pericent  
ECIC ext cx inf coll  
Ect ectothial cx  
ILL intermediate nu ll

KF Killiker-Fuse nu  
LDTg laterodorsal teg  
LDTgV latdors teg vent  
LEnt lat entorhinal cx  
lfp long fasc pons  
LPB lat parabrach  
LPBC lat parabrach cent  
LPBE lat parabrach ext  
LPBS lat parabrach sup

LPB lat parabrach  
LPBC lat parabrach cent  
LPBE lat parabrach ext  
LPBS lat parabrach sup

m5 motor root 5n  
mcp mid cerebellar ped  
Me5 mesenceph 5 nu  
me5 mesenceph 5 tr  
MEnt medial entorhinal  
ml medial lemniscus  
mlf med long fasc  
MnR median raphe nu

MPB medial parabrach  
MPL med paralemniscus  
MVPO medioventer periol  
PaS parasubiculum  
Pi pineal gland  
PLV perilemnisc vent  
PMnR paramedian raphe  
Pn pontine nuclei

PnO pontine retic oral  
PPTg pedunclopont teg  
PRh perirhinal cx  
ReIC recess of inf coll  
rf rhinal fissure  
RL retrollemnisc nu  
rs rubrospinal tract  
RSD retrosple dysgran

RtTg reticulotegmental  
s5 sensory root of 5n  
Sag sagulum nu  
scp sup cerebellar ped  
Su5 supratrigem nu  
TeA temporal assoc  
tfp trans fibers pons  
Tr triangular nu

ts tectospinal tract  
tth trigeminothal tr  
tz trapezoid body  
v vein  
V1B V1, binocular  
V1M V1, monocular  
V2L V2, lateral  
V2MM V2 cx, mediodorsal

VLL ventral nu lat lem  
VLPAG ventrolat PAG  
vsc vent spinocer tr  
VTg vent tegment nu

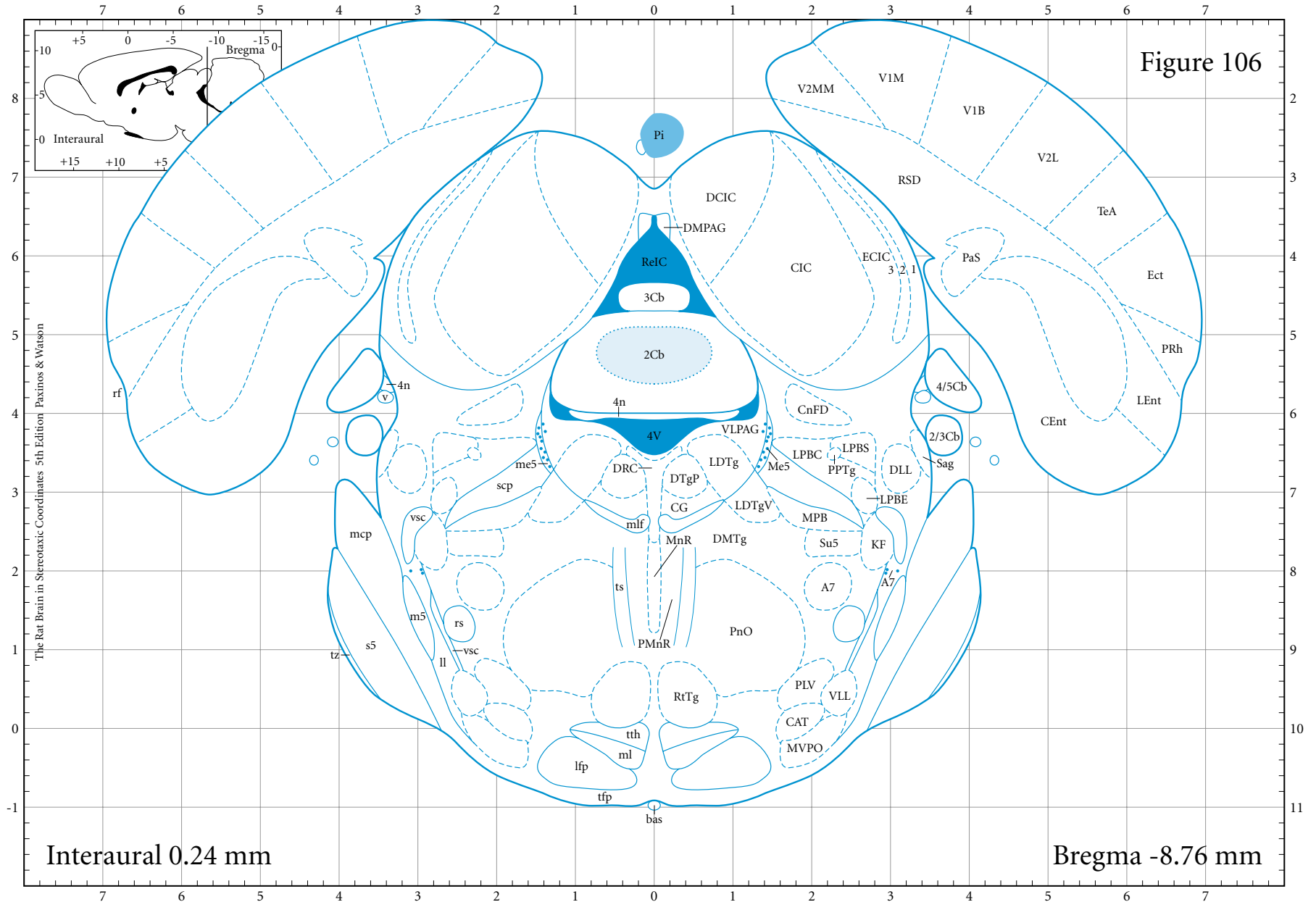
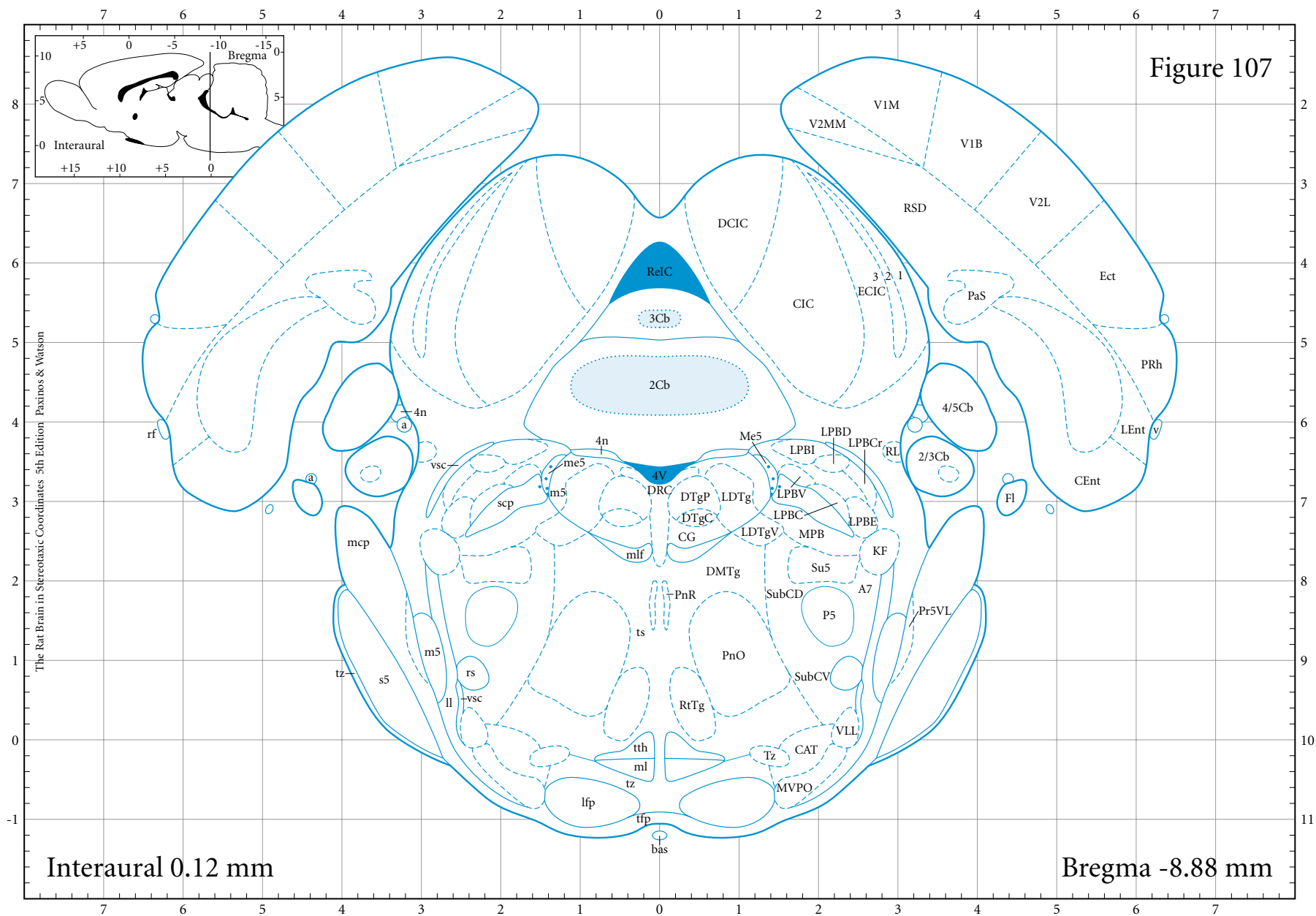


Figure 107



1 layer 1 cortex  
2 layer 2 cortex  
2/3Cb 2nd&3rd Cb lob  
2Cb 2nd Cb lobule  
3 layer 3 cortex  
3Cb 3rd Cb lobule  
4/5Cb 4th&5th Cb lob

4Cb 4th Cb lobule  
4n trochlear nerve  
4V 4th ventricle  
5N motor trigeminal  
a artery  
A5 A5 noradr cells  
A7 A7 noradr cells

Bar Barrington's nu  
bas basilar artery  
CAT nu cent acoust tr  
cbw cereb white mat  
CEnt coudomed ent cx  
CG central gray  
CIC central nu inf coll

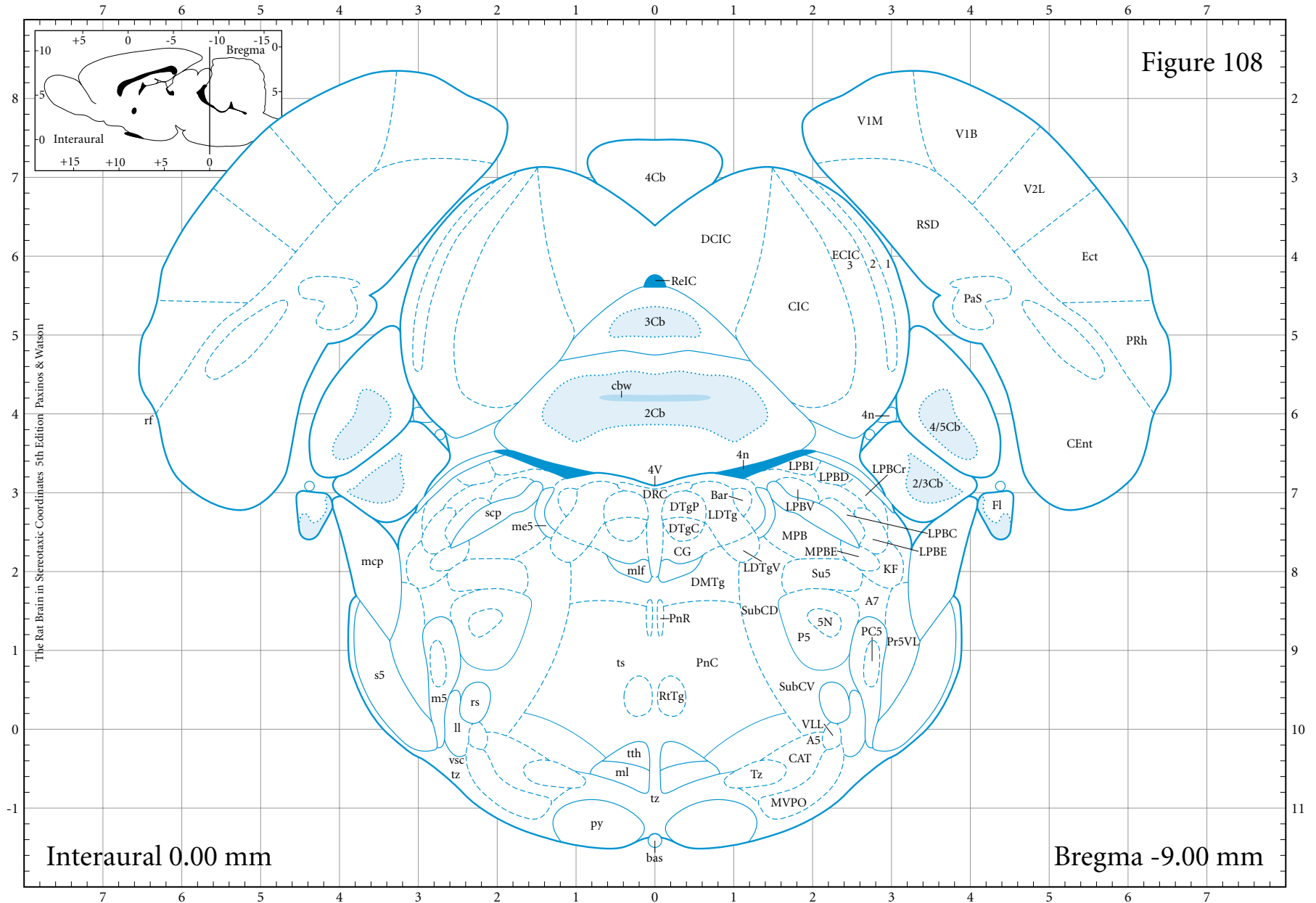
DCIC dorsal cx IC  
DMTg dorsomed teg area  
DRC dorsal raphe caud  
DTgC dorsal teg nu, cent  
DTgP dors teg pericent  
ECIC ext cx inf coll  
Ect ectothalinal cx

Fl flocculus  
KF Killiker-Fuse nu  
LDTg laterodorsal teg  
LDTgV latdors teg vent  
LEnt lat entorhinal cx  
ECIC ext cx inf coll  
lfl lat lemniscus

LPBC lat parabrach cent  
LPBCr lat parab crescent  
LPBD lat parabrach dors  
LPBE lat parabrach ext  
LPBI lat parabrach int  
LPBV lat parabrach vent



V1M V1, monocular  
V2L V2, lateral  
V2MM V2 cx, mediomed  
VLL ventral nu lat lem  
VMPO ventromed preopt  
vsc vent spinocer tr





V1M V1, monocular  
V2L V2, lateral  
VCA vent cochlear ant  
VMPO ventromed preopt  
vsc vent spinocer tr

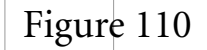
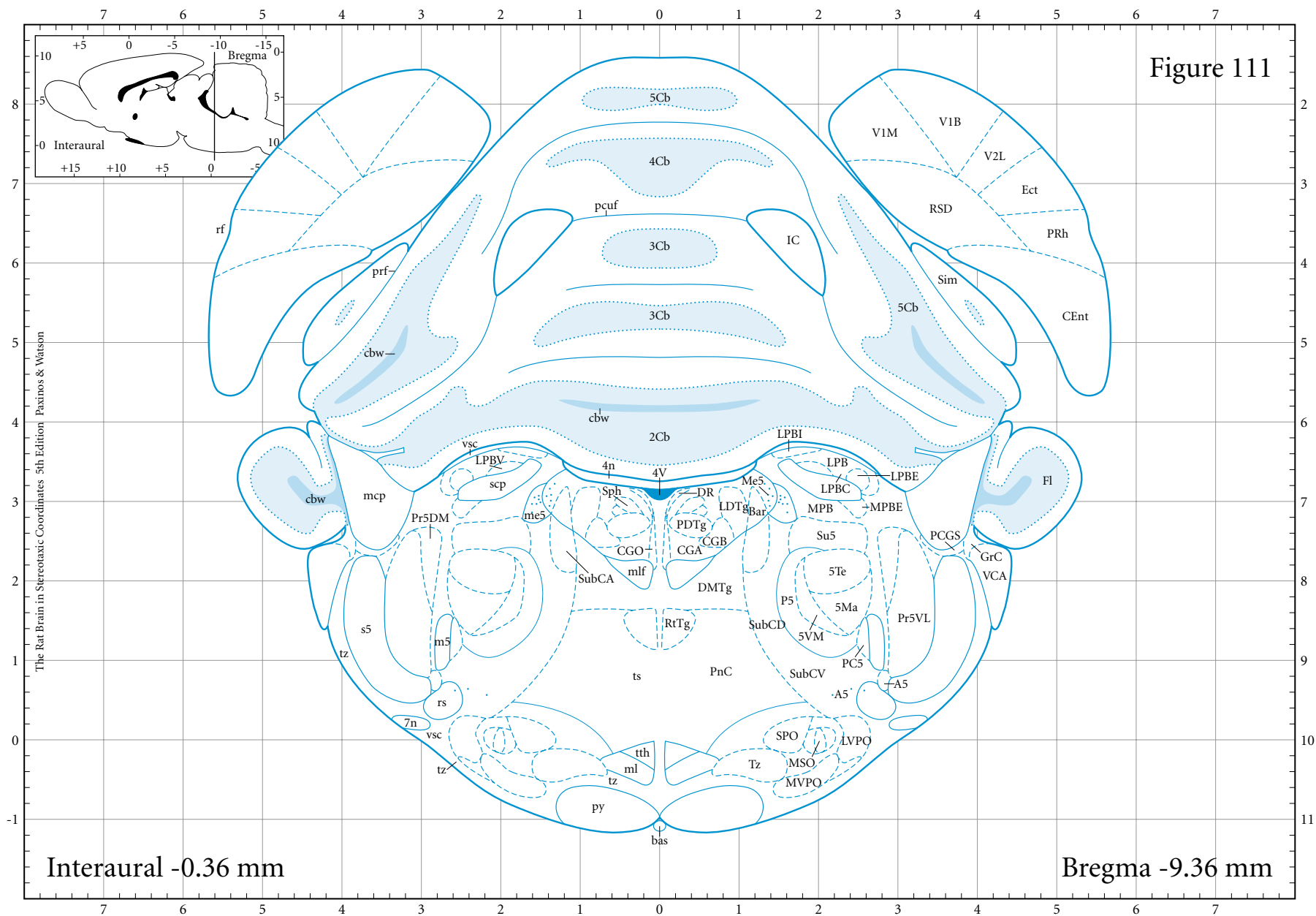


Figure 111



- |                     |                        |                        |                         |
|---------------------|------------------------|------------------------|-------------------------|
| 1Cb 1st Cb lobule   | 5VM mo 5 ventromed     | CGB central gray bets  | LC locus coeruleus      |
| 2Cb 2nd Cb lobule   | 7n facial nerve        | CGO cent gray nu O     | LDTg laterodorsal teg   |
| 3Cb 3rd Cb lobule   | 8cn cochlear root 8 n  | Cx cerebral cortex     | LPB lat parabrach       |
| 4Cb 4th Cb lobule   | A5 A5 noradr cells     | DMTg dorsomed teg area | LPBC lat parabrach cent |
| 4n trochlear nerve  | Bar Barrington's nu    | DR dorsal raphe nu     | LPBE lat parabrach ext  |
| 4V 4th ventricle    | bas basilar artery     | Ect ectorhinal cx      | LPBI lat parabrach int  |
| 5Cb 5th Cb lobule   | cbw cereb white mat    | Fl flocculus           | LPBV lat parabrach vent |
| 5Ma mo 5 masseter   | CEnt coudomed ent cx   | GrC granule cochlear   | LSO lat superior olive  |
| 5Te mo 5 temporalis | CGA central gray alpha | IC inferior colliculus | LVPO laterovent periol  |

m5 motor root 5n  
mcp mid cerebellar ped  
Me5 mesenceph 5 nu  
me5 mesenceph 5 tr  
ml medial lemniscus  
mlf med long fasc  
MPB medial parabrach  
MPBE med parabrach ext

MSO med superior olive  
MVPO mediovent perio  
P5 peritrigeminal zn  
PC5 parvicell motor 5  
PCGS paracoch glial  
pcuf preculminate fiss  
PDTg posterodorsal teg  
PnC pontine retic caud

POH periolivary horn  
Pr5DM princ 5 dorsomed  
Pr5VL princ 5 ventrolat  
prf primary fissure  
PRh perirhinal cx  
py pyramidal tract  
rf rhinal fissure  
rs rubrospinal tract

RSD retrosple dysgran  
RtTg reticulotegmental  
RtTgL reticuloteg lat  
s5 sensory root of 5n  
scp sup cerebellar ped  
scpd scp descend limb  
Sim simple lobule  
SMV sup medull velum

Sph sphenoid nu  
SPO superior paraoliv  
Su5 supratrigem nu  
SubCA SubC alpha  
SubCD SubC dorsal  
SubCV SubC ventral  
ts tectospinal tract  
tth trigeminothal tr

Tz nu trapezoid body  
tz trapezoid body  
V1B V1, binocular  
V1M V1, monocular  
V2L V2, lateral  
VCA vent cochlear ant  
vsc vent spinocer tr

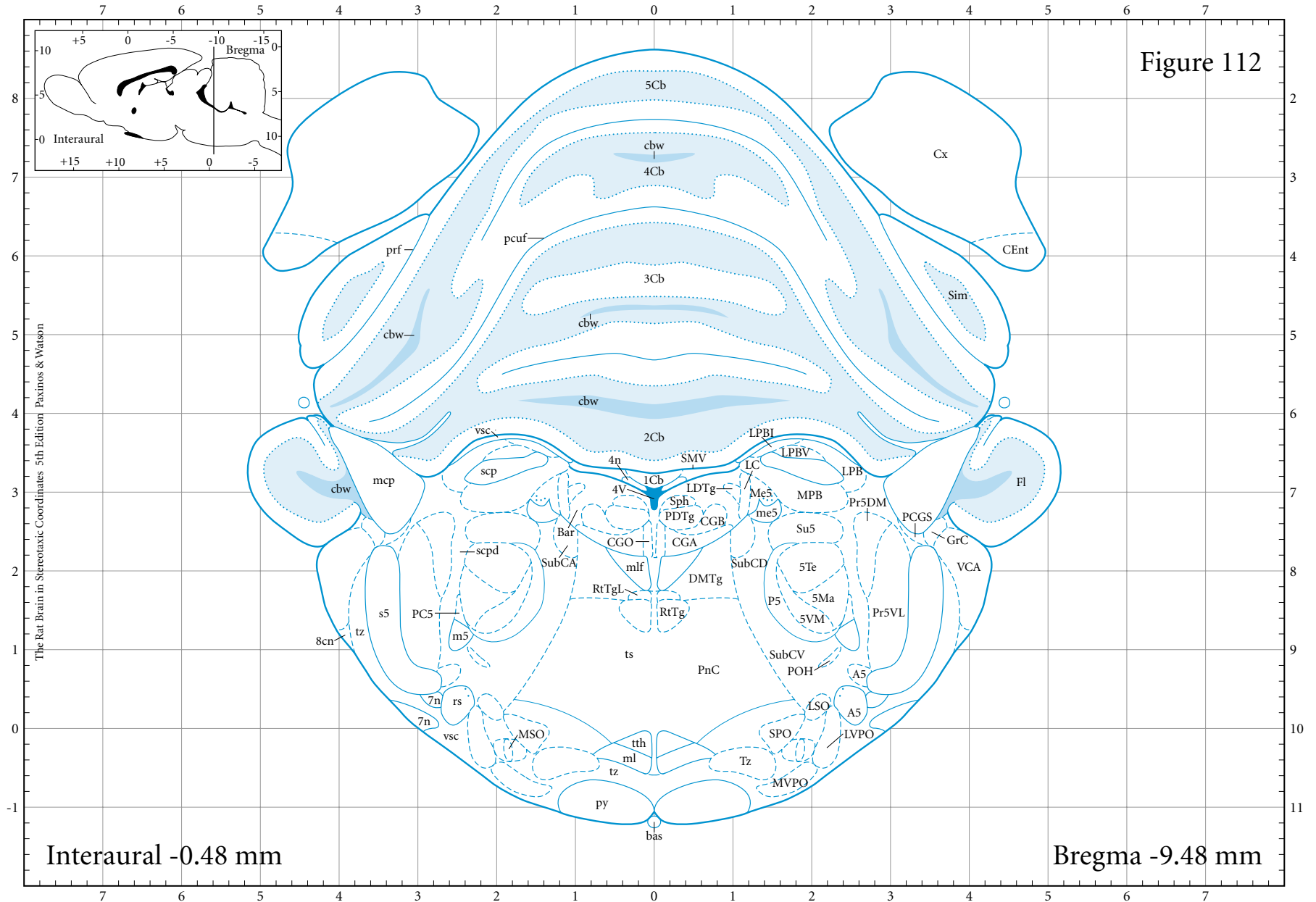
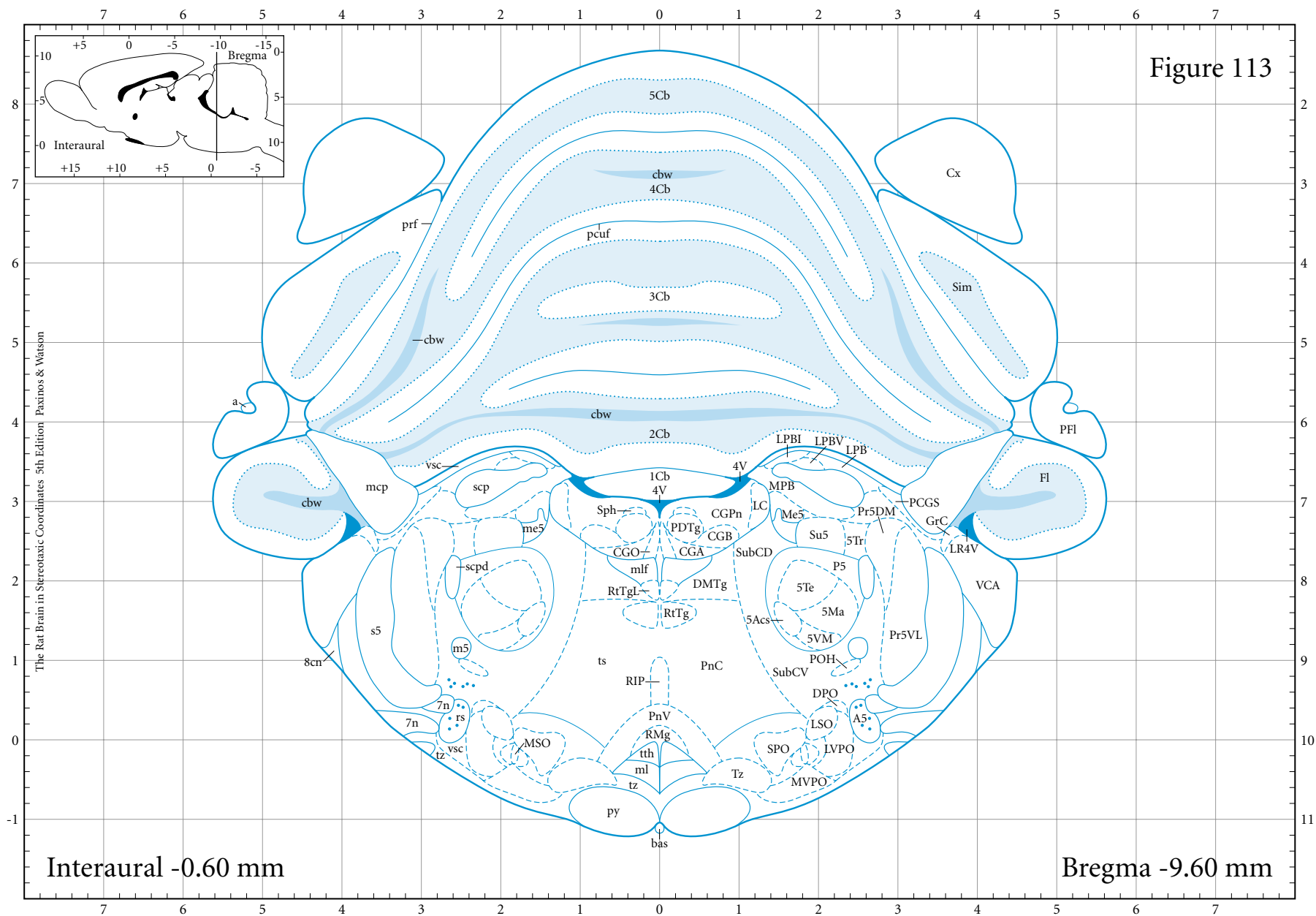


Figure 113



- |                     |                        |                        |                         |
|---------------------|------------------------|------------------------|-------------------------|
| 1Cb 1st Cb lobule   | 5Tr trigem trans zone  | CGB central gray bets  | LPB lat parabrach       |
| 2Cb 2nd Cb lobule   | 5VM mo 5 ventromed     | CGO cent gray nu O     | LPBI lat parabrach int  |
| 3Cb 3rd Cb lobule   | 7n facial nerve        | CGPn central gray pons | LPBV lat parabrach vent |
| 4Cb 4th Cb lobule   | 8cn cochlear root 8 n  | Cx cerebral cortex     | LR4V lat recess 4V      |
| 4V 4th ventricle    | a artery               | DMTg dorsomed teg area | LSO lat superior olive  |
| 5Acs mo 5 accessory | A5 A5 noradr cells     | DPO dorsal periolivary | LVPO lateroventr periol |
| 5Cb 5th Cb lobule   | bas basilar artery     | Fl flocculus           |                         |
| 5Ma mo 5 masseter   | cbw cereb white mat    | GrC granule cochlear   |                         |
| 5Te mo 5 temporalis | CGA central gray alpha | LC locus coeruleus     |                         |

ts tectospinal tract  
tth trigeminothal tr  
Tz nu trapezoid body  
tz trapezoid body  
VCA vent cochlear ant  
vsc vent spinocer tr

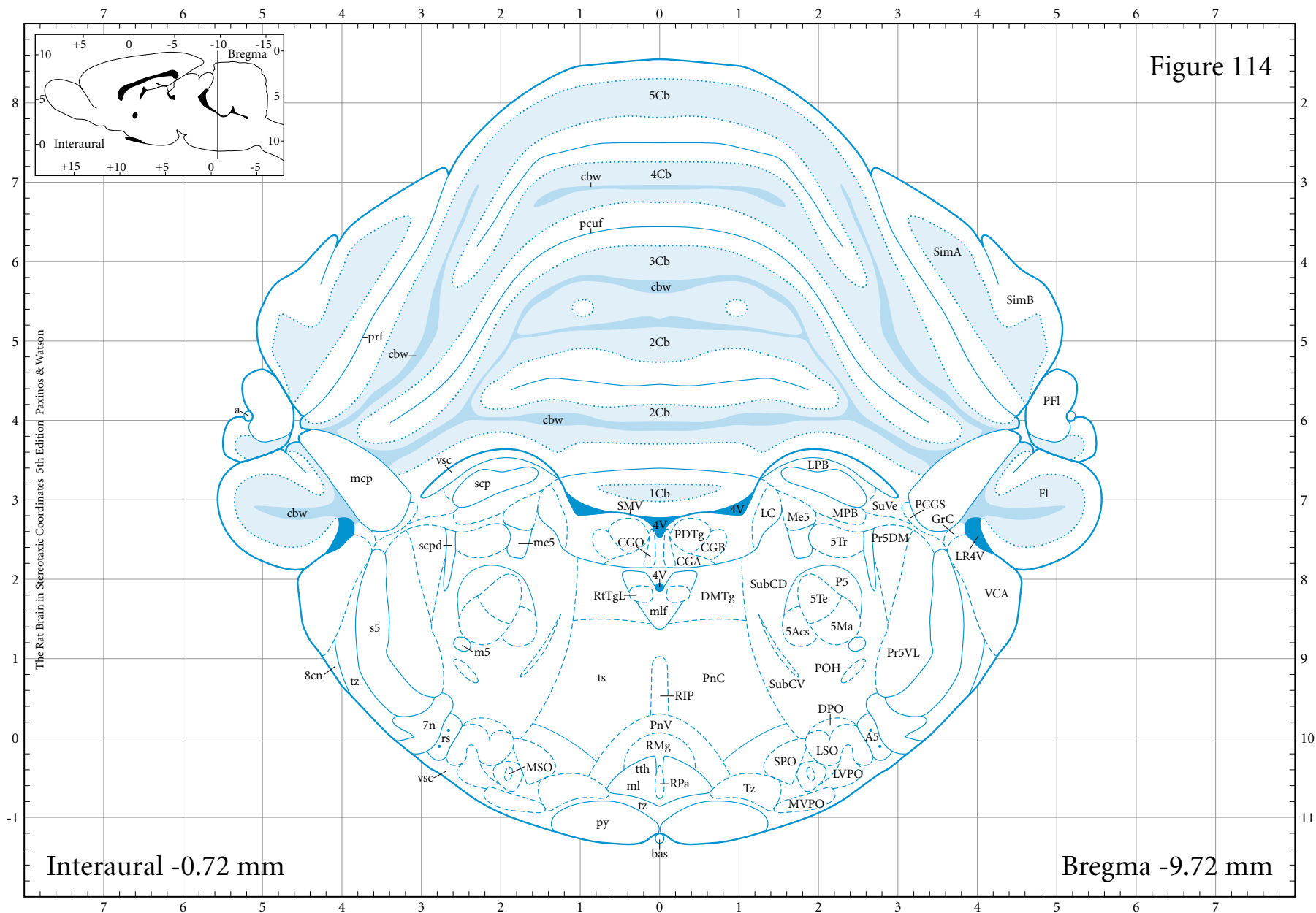
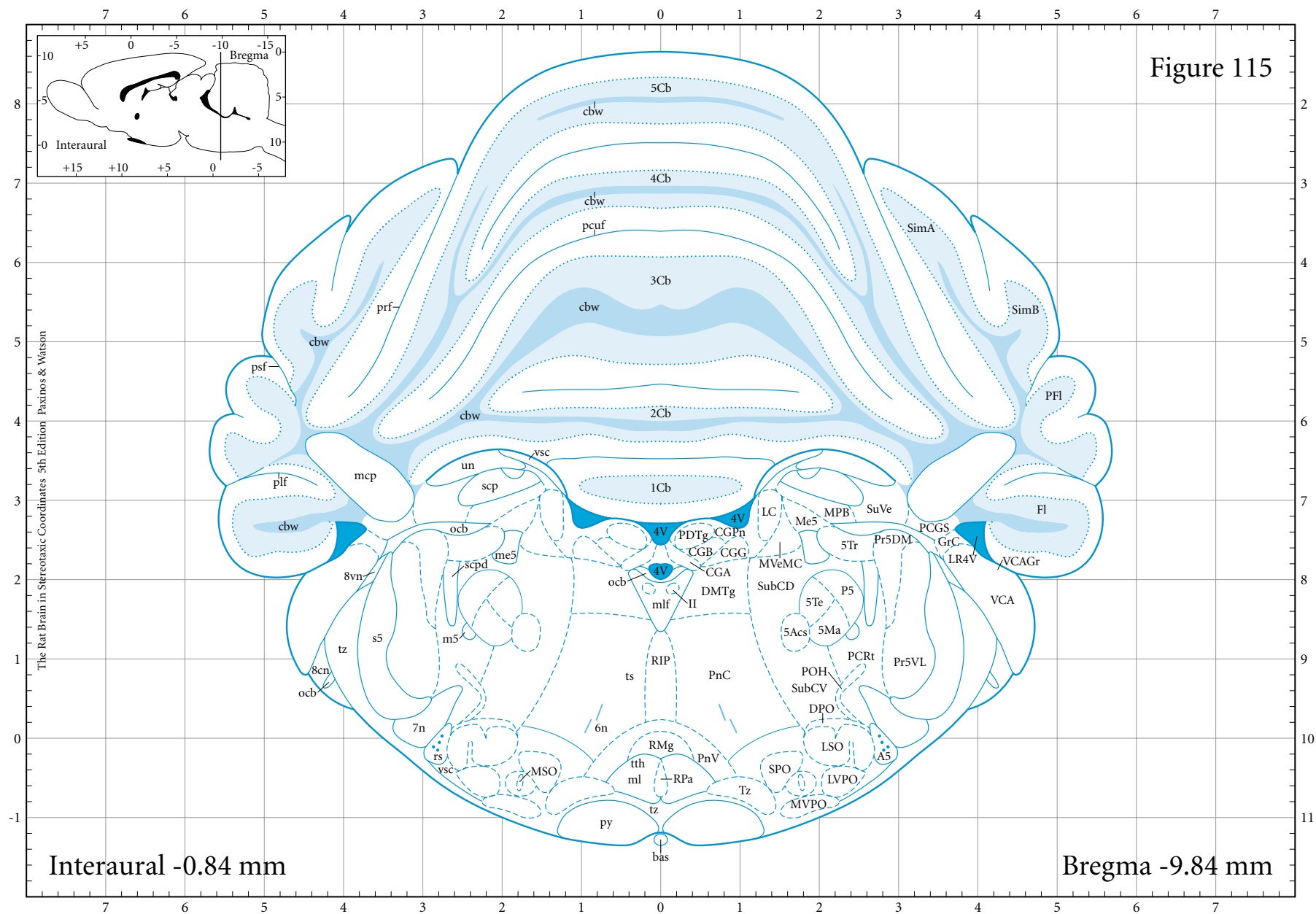




Figure 115



- |                     |                        |                        |                        |
|---------------------|------------------------|------------------------|------------------------|
| 1Cb 1st Cb lobule   | 5Tr trigem trans zone  | CGB central gray bets  | II int interstit mlf   |
| 2Cb 2nd Cb lobule   | 6n root of abducens    | CGG cent gray gamma    | LC locus coeruleus     |
| 3Cb 3rd Cb lobule   | 7n facial nerve        | CGPn central gray pons | LR4V lat recess 4V     |
| 4Cb 4th Cb lobule   | 8cn cochlear root 8 n  | DMTg dorsomed teg area | LSO lat superior olive |
| 4V 4th ventricle    | 8vn vestib root 8 n    | DPO dorsal periolivary | LVPO laterovent periol |
| 5Acs mo 5 accessory | bas basilar artery     | EVe nu efferents 8vn   |                        |
| 5Cb 5th Cb lobule   | cbw cereb white mat    | GrC granule cochlear   |                        |
| 5Ma mo 5 masseter   | CGA central gray alpha | icp inf cerebellar ped |                        |
| 5Te mo 5 temporalis |                        |                        |                        |

m5 motor root 5n  
mcp mid cerebellar ped  
Me5 mesenceph 5 nu  
me5 mesenceph 5 tr  
ml medial lemniscus  
mlf med long fasc  
MPB medial parabrach  
MSO med superior olive  
MVMeC med vestib magno

MVPO mediovent perio  
ocb olivocochl bundle  
P5 peritrigeminal zn  
PCGS paracoch glial  
PCRt parvicell ret nu  
pcuf preculminate fiss  
PDTg posterodorsal teg  
PFI parafofoculus  
plf posterolat fissure

PnC pontine retic caud  
PnV pontine retic vent  
POH periolivary horn  
Pr5DM princ 5 dorsomed  
Pr5VL princ 5 ventrolat  
prf primary fissure  
psf post superior fiss  
py pyramidal tract  
RIP raphe interpos nu

RMg raphe magnus nu  
RPa raphe pallidus nu  
rs rubrospinal tract  
s5 sensory root of 5n  
scp sup cerebellar ped  
scpd scp descend limb  
SGe supragenual nu  
SimA simple lobule A  
SimB simple lobule B

SMV sup medull velum  
SPO superior paraoliv  
SubCD SubC dorsal  
SubCV SubC ventral  
SuVe superior vestib nu  
ts tectospinal tract  
tth trigeminothal tr  
Tz nu trapezoid body  
tz trapezoid body

un uncinat fascic  
VCA vent cochlear ant  
VCAGr VCA granule layer  
veme vestibulomes tr  
vsc vent spinocer tr

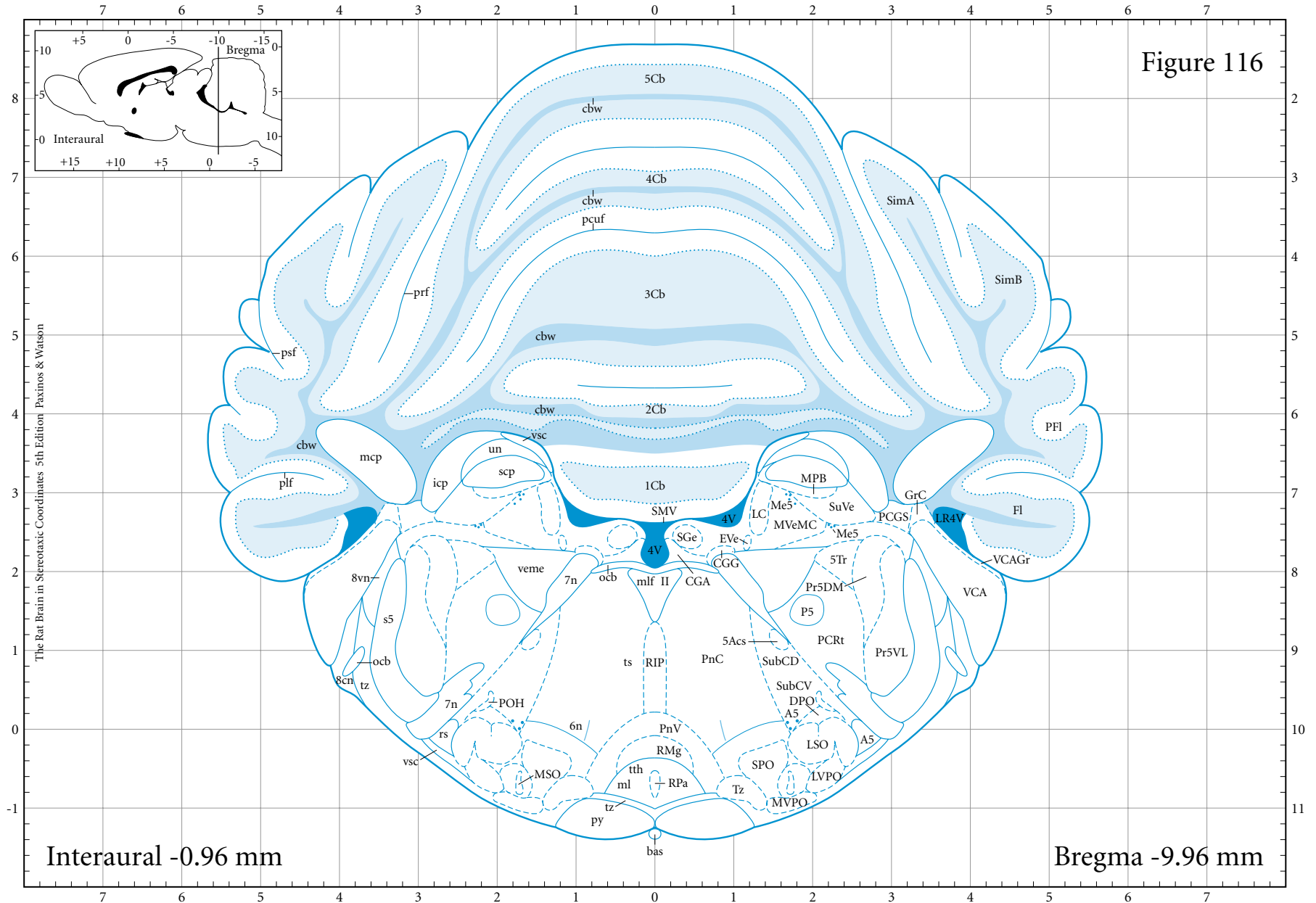
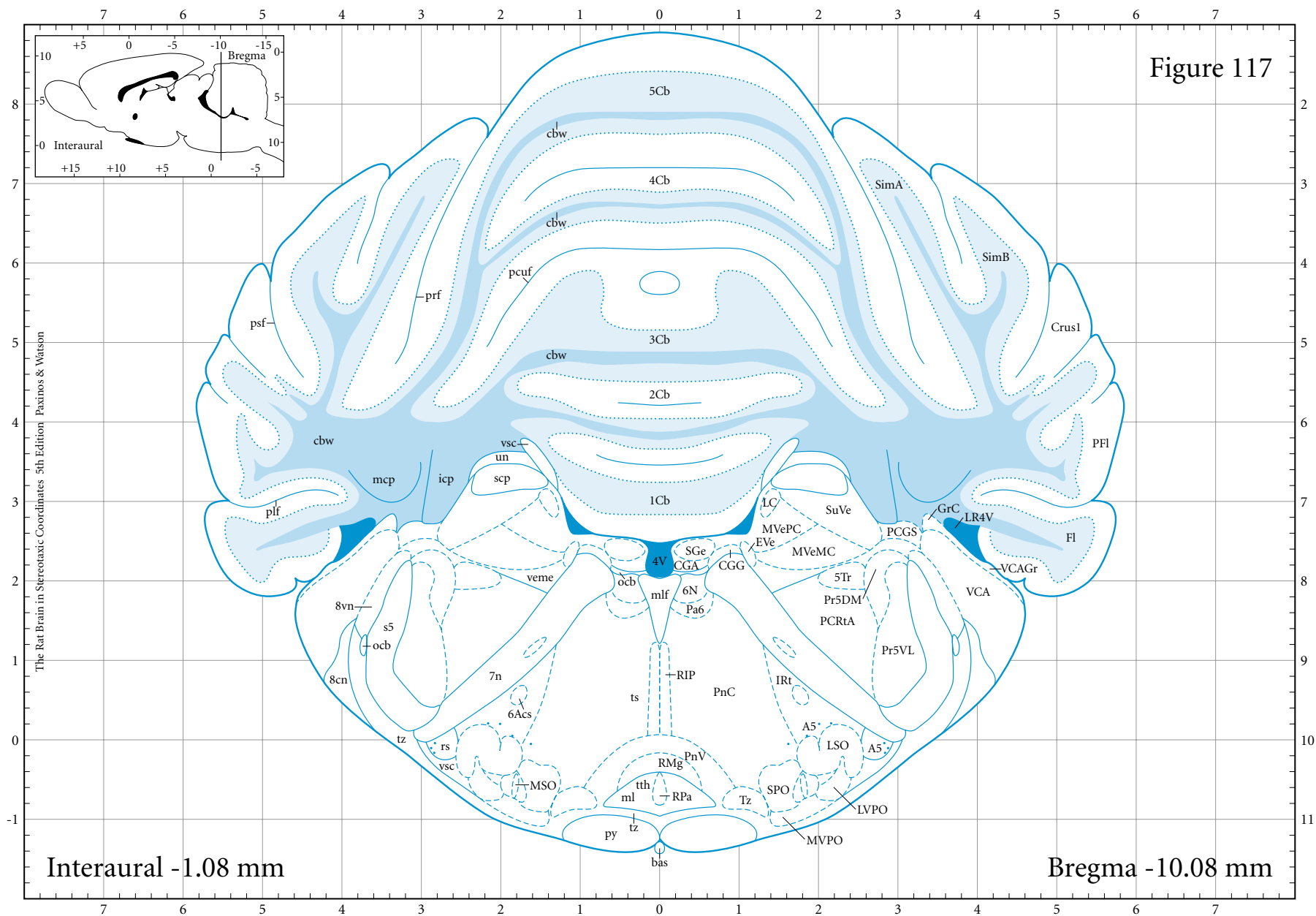


Figure 117



- |                       |                        |                        |                         |
|-----------------------|------------------------|------------------------|-------------------------|
| 1Cb 1st Cb lobule     | 7n facial nerve        | chp choroid plexus     | IRt intermed ret nu     |
| 2Cb 2nd Cb lobule     | 8cn cochlear root 8 n  | Crus1 crus 1 ansiform  | LC locus coeruleus      |
| 3Cb 3rd Cb lobule     | 8vn vestib root 8 n    | DPO dorsal periolivary | LR4V lat recess 4V      |
| 4Cb 4th Cb lobule     | a artery               | EVe nu efferents 8vn   | LSO lat superior olive  |
| 4V 4th ventricle      | A5 A5 noradr cells     | Fl flocculus           | LVPO lateroventr periol |
| 5Cb 5th Cb lobule     | bas basilar artery     | g7 genu of 7 n         |                         |
| 5Tr trigem trans zone | cbw cereb white mat    | GrC granule cochlear   |                         |
| 6Acs access abducens  | CGA central gray alpha | I8 interstitial nu 8n  |                         |
| 6N abducens nu        | CGG cent gray gamma    | icp inf cerebellar ped |                         |

mcp mid cerebellar ped  
ml medial lemniscus  
mlf med long fasc  
MSO med superior olive  
MVeMC med vestib magno  
MVePC med vestib parvi  
MVPO mediovent periol  
ocb olivocochl bundle

Pa6 paraabducens nu  
PCGS paracoch glial  
PCRtA parvicell ret alpha  
pcuf preculminate fiss  
PFI paraflocculus  
plf posterolat fissure  
PnC pontine retic caud  
PnV pontine retic vent

Pr5DM princ 5 dorsomed  
Pr5VL princ 5 ventrolat  
prf primary fissure  
psf post superior fiss  
py pyramidal tract  
RIP raphe interpos nu  
RMg raphe magnus nu  
RPa raphe pallidus nu

rs rubrospinal tract  
s5 sensory root of 5n  
scp sup cerebellar ped  
SGe supragenual nu  
SimA simple lobule A  
SimB simple lobule B  
sp5 sp trigeminal tr  
SPO superior paraoliv

SuS sup salivatory nu  
SuVe superior vestib nu  
ts tectospinal tract  
tth trigeminothal tr  
Tz nu trapezoid body  
tz trapezoid body  
tzd trapezoid decuss  
un uncinate fascic

VCA vent cochlear ant  
VCAGr VCA granule layer  
veme vestibulomes tr  
vsc vent spinocer tr

Figure 118

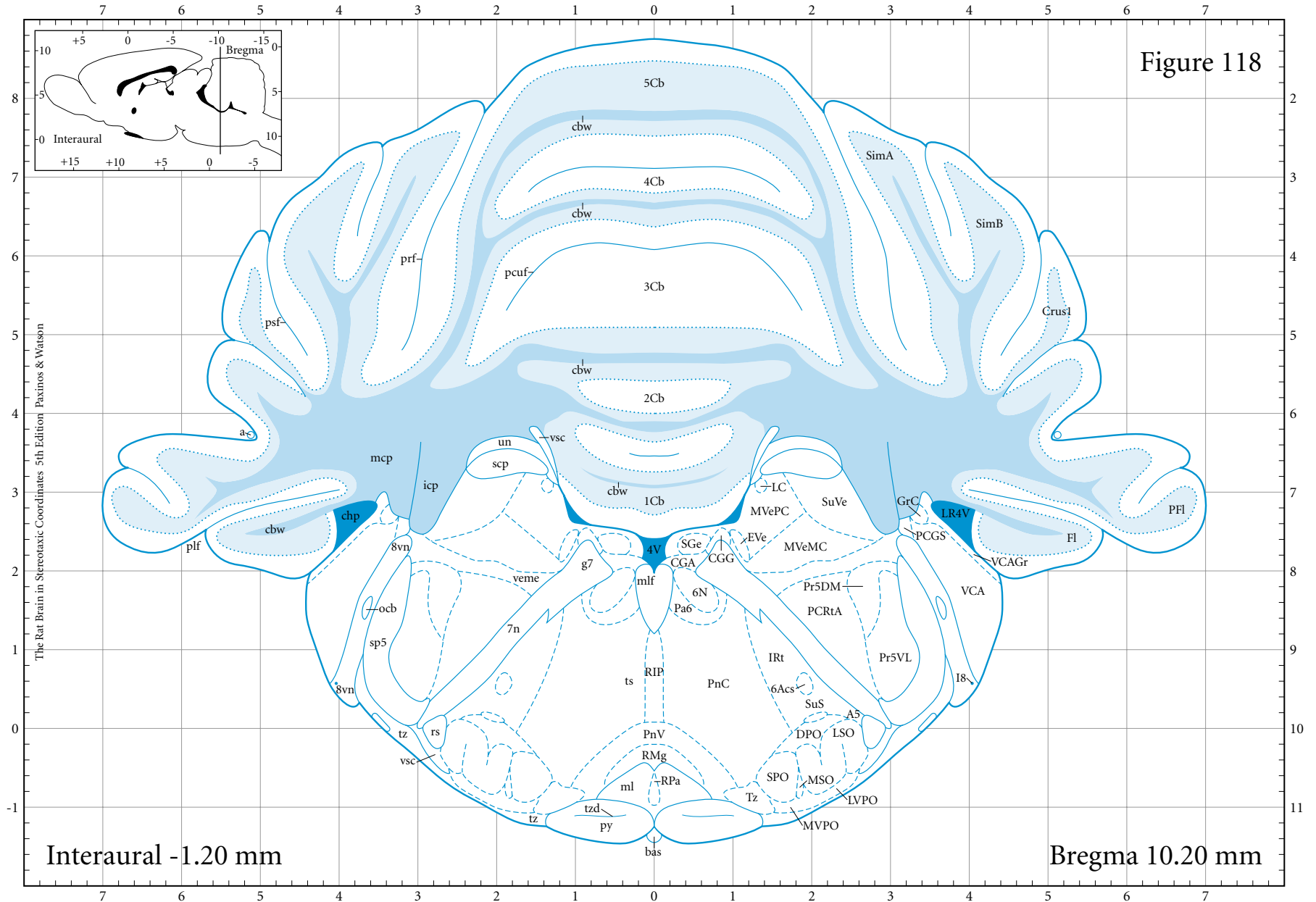
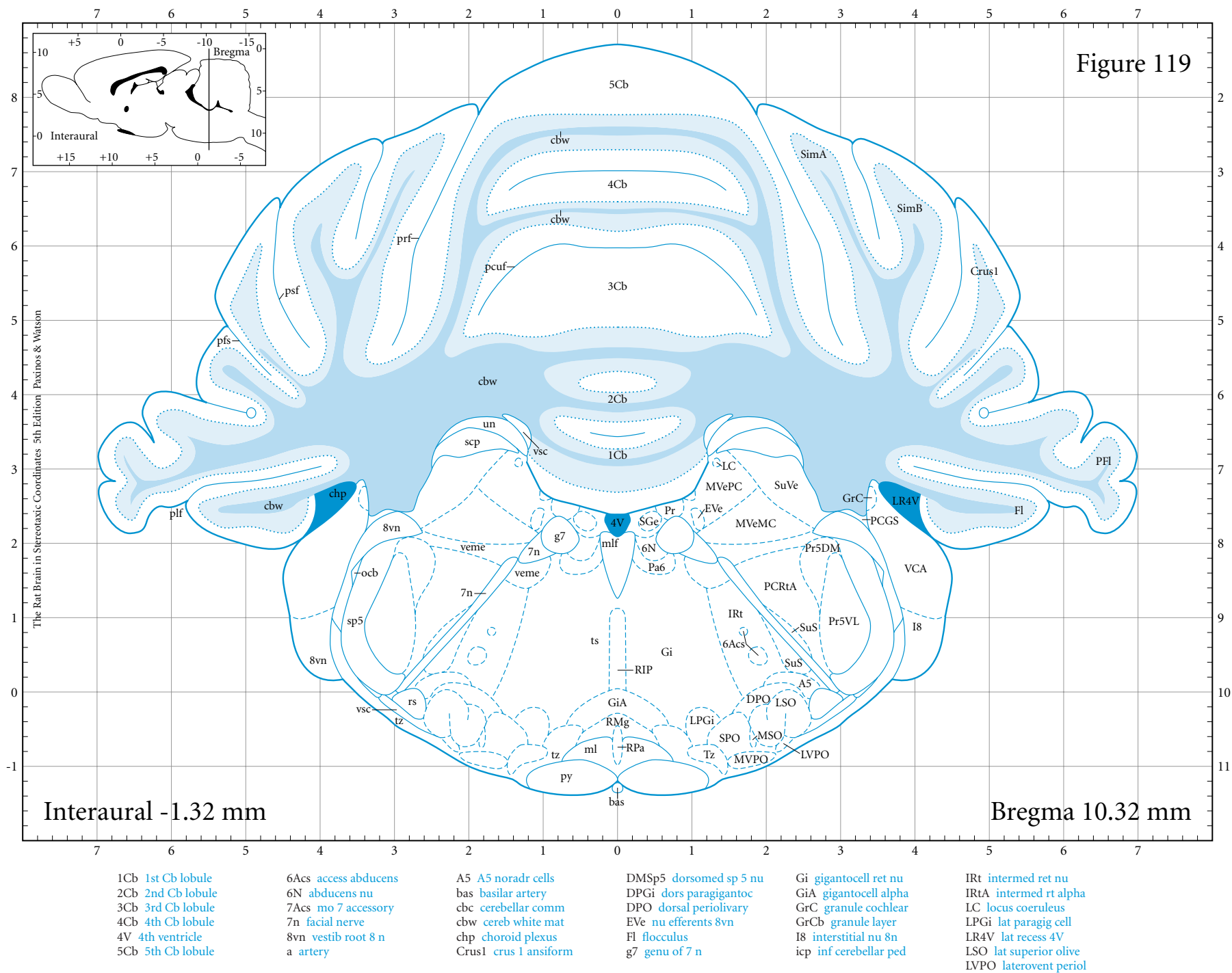


Figure 119



ml medial lemniscus  
mlf med long fasc  
MoCb molec layer Cb  
MSO med superior olive  
MVeMC med vestib magno  
MVePC med vestib parvi  
MVPO mediovent periol  
ocb olivocochl bundle

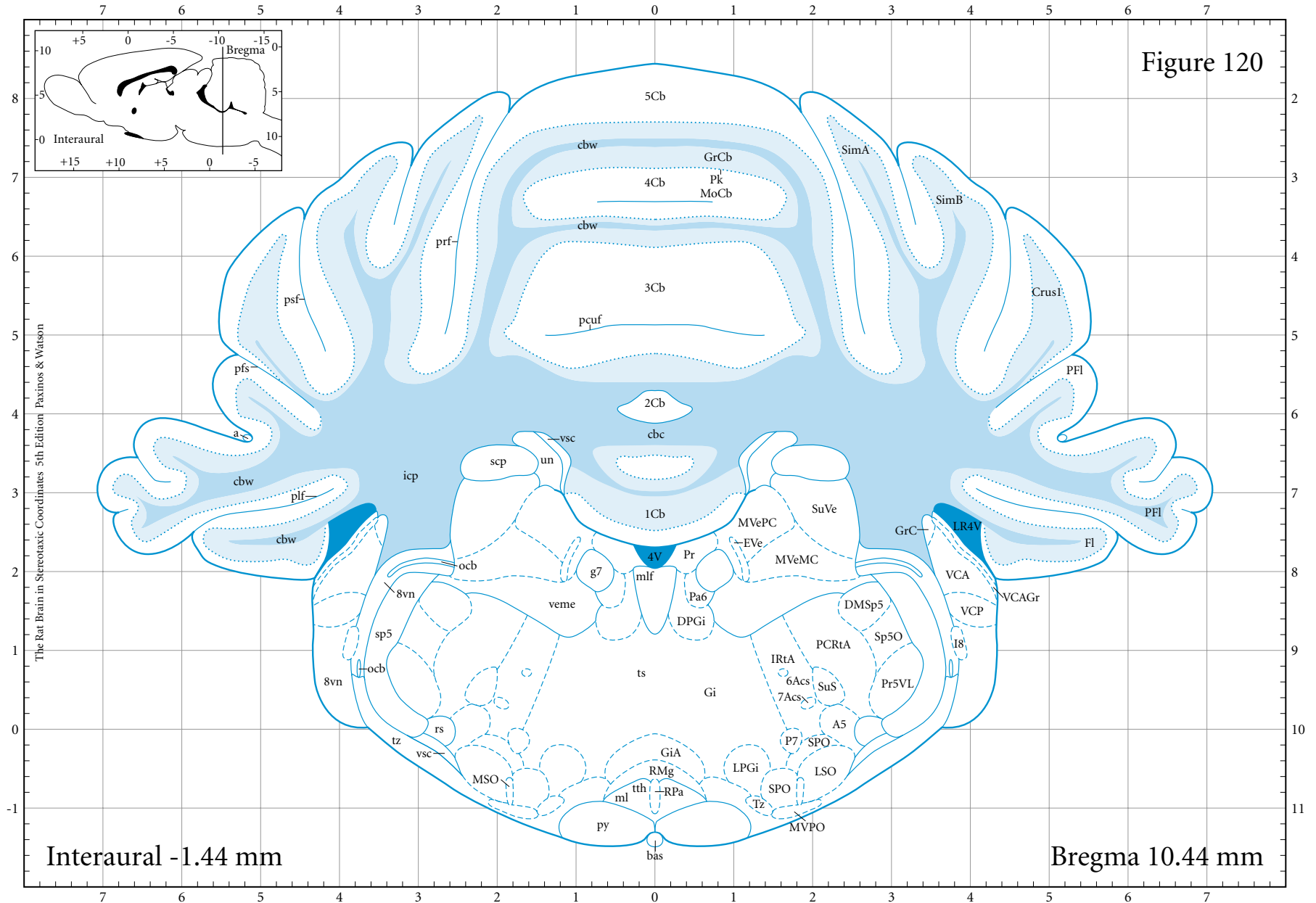
P7 perifacial zone  
Pa6 paraabducens nu  
PCRtA parvicell ret alpha  
pcuf preculminate fiss  
PFI paraflocculus  
pfs paraflocc sulcus  
Pk Purkinje cells  
plf posterolat fissure

Pr prepositus nu  
Pr5DM princ 5 dorsomed  
Pr5VL princ 5 ventrolat  
prf primary fissure  
psf post superior fiss  
py pyramidal tract  
RIP raphe interpos nu  
RMg raphe magnus nu

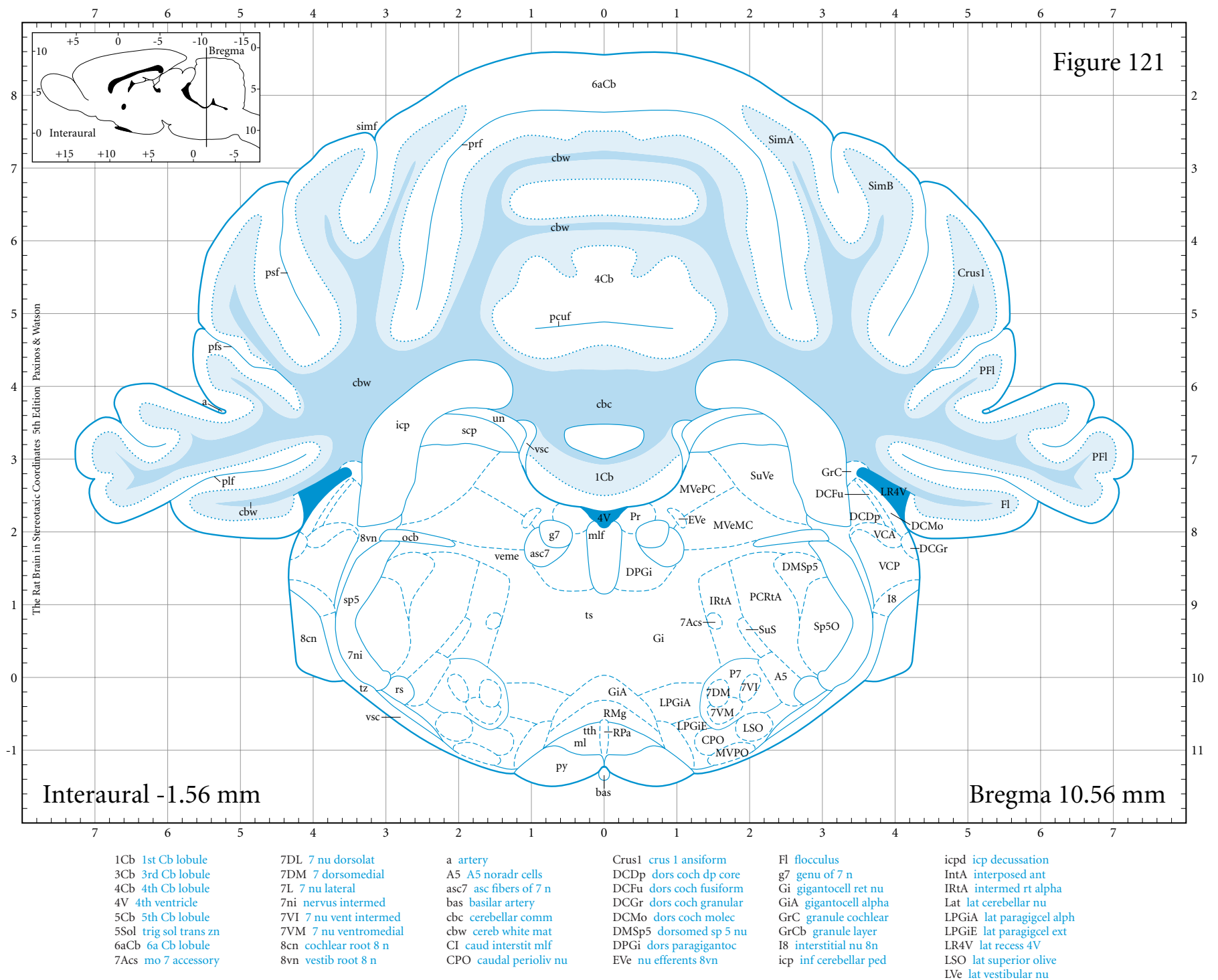
RPa raphe pallidus nu  
rs rubrospinal tract  
scp sup cerebellar ped  
SGe supragenual nu  
SimA simple lobule A  
SimB simple lobule B  
sp5 sp trigeminal tr  
Sp5O spinal 5 oral

SPO superior paraoliv  
SuS sup salivatory nu  
SuVe superior vestib nu  
ts tectospinal tract  
tth trigeminothal tr  
Tz nu trapezoid body  
tz trapezoid body  
un uncinate fascic

VCA vent cochlear ant  
VCAGr VCA granule layer  
VCP vent cochlear post  
veme vestibulomes tr  
vsc vent spinocer tr









ml medial lemniscus  
mlf med long fasc  
MoCb molec layer Cb  
MVeMC med vestib magn  
MVePC med vestib parvi  
MVPO mediovent periol  
ocb olivocochl bundle

P7 perifacial zone  
PCRtA parvicell ret alpha  
pcuf preculminate fiss  
PFI parafllocculus  
pfs parafllocc sulcus  
Pk Purkinje cells  
plf posterolat fissure

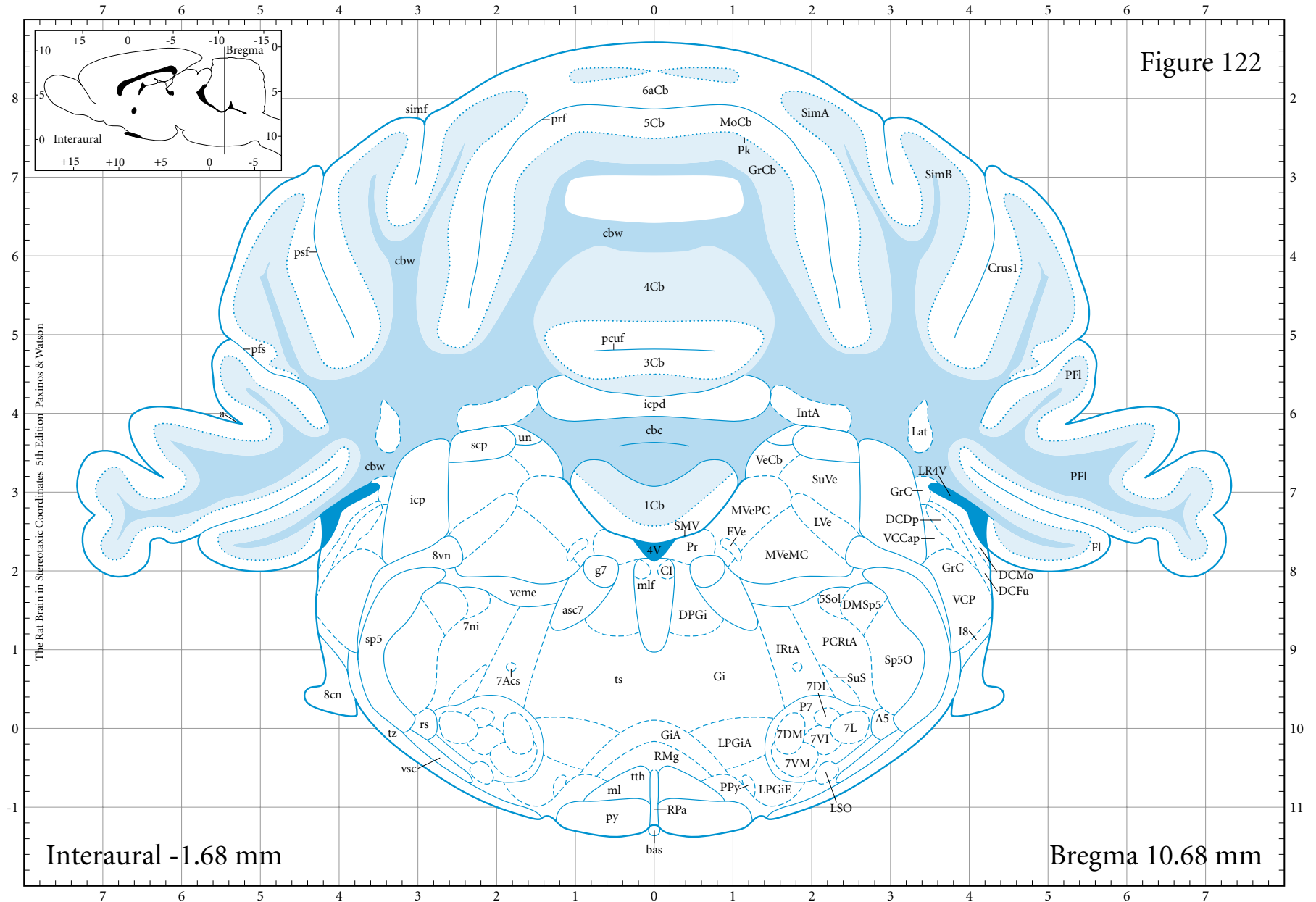
PPy parapyramidal nu  
Pr prepositus nu  
prf primary fissure  
psf post superior fiss  
py pyramidal tract  
RMg raphe magnus nu  
RPa raphe pallidus nu

rs rubrospinal tract  
scp sup cerebellar ped  
SimA simple lobule A  
SimB simple lobule B  
simf simplex fissure  
SMV sup medull velum  
sp5 sp trigeminal tr

Sp5O spinal 5 oral  
SuS sup salivatory nu  
SuVe superior vestib nu  
ts tectospinal tract  
tth trigeminothal tr  
tz trapezoid body  
un uncinate fascic

VCA vent cochlear ant  
VCCap vent cochlear cap  
VCP vent cochlear post  
VeCb vestibulocereb nu  
veme vestibulomes tr  
vsc vent spinocer tr

Figure 122





Med med cerebellar nu  
ml medial lemniscus  
mlf med long fasc  
MVeMC med vestib magno  
MVePC med vestib parvi  
P7 perifacial zone  
PCRtA parvicell ret alpha

pcuf preculminate fiss  
PFl paraflocculus  
pfs paraflocc sulcus  
plf posterolat fissure  
PPy parapyramidal nu  
Pr prepositus nu  
prf primary fissure

psf post superior fiss  
py pyramidal tract  
RMg raphe magnus nu  
RPa raphe pallidus nu  
rs rubrospinal tract  
scp sup cerebellar ped  
Sim simple lobule

SimA simple lobule A  
SimB simple lobule B  
simf simplex fissure  
SMV sup medull velum  
sp5 sp trigeminal tr  
Sp5O spinal 5 oral  
SuS sup salivatory nu

SuVe superior vestib nu  
ts tectospinal tract  
tth trigeminothal tr  
tz trapezoid body  
und uncinat fasc dec  
VCCap vent cochlear cap  
VCPO VCP octopus cells

VeCb vestibulocereb nu  
vesp vest spinal tr  
vsc vent spinocer tr  
vscd vsc decussation  
Y nu Y

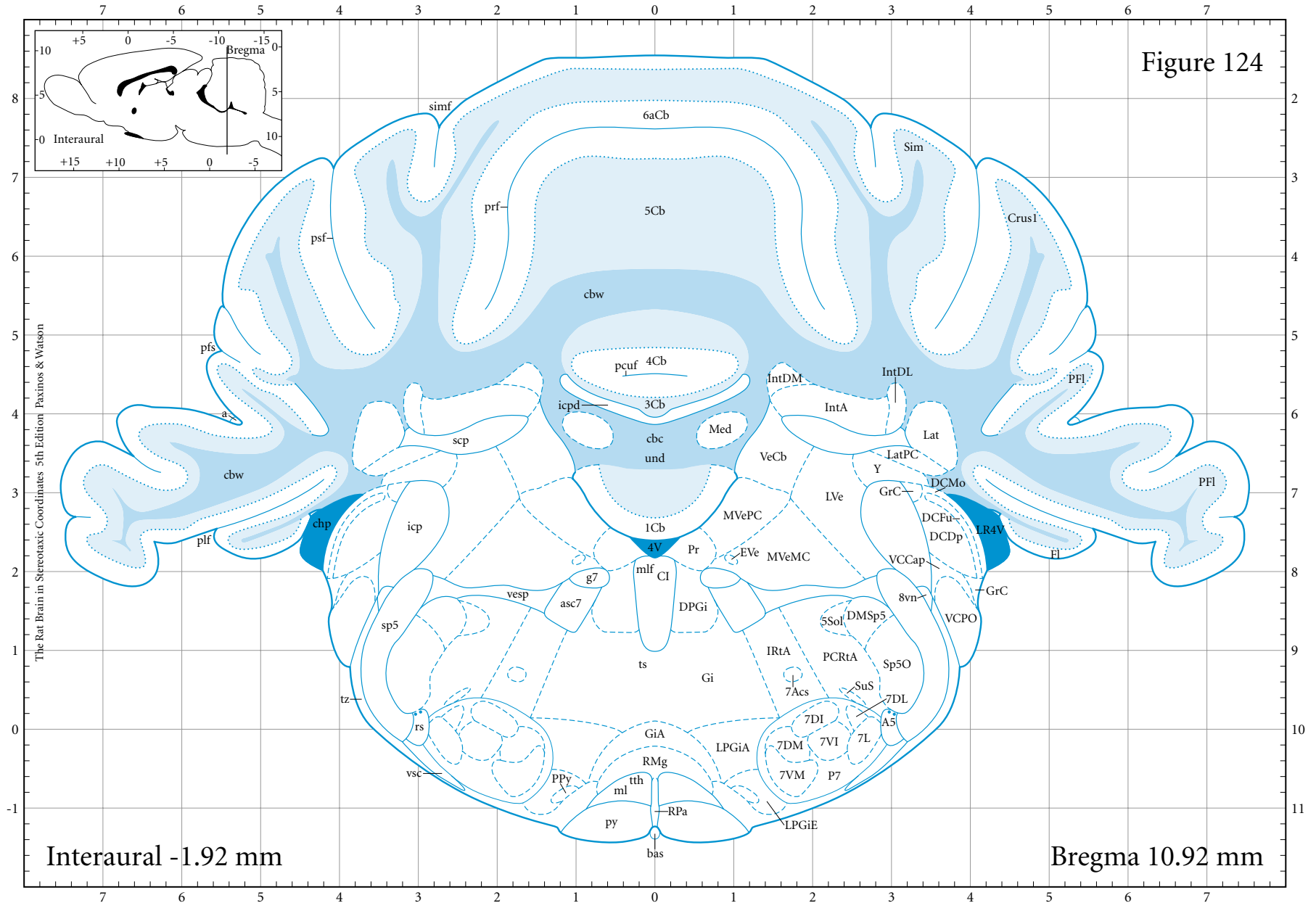
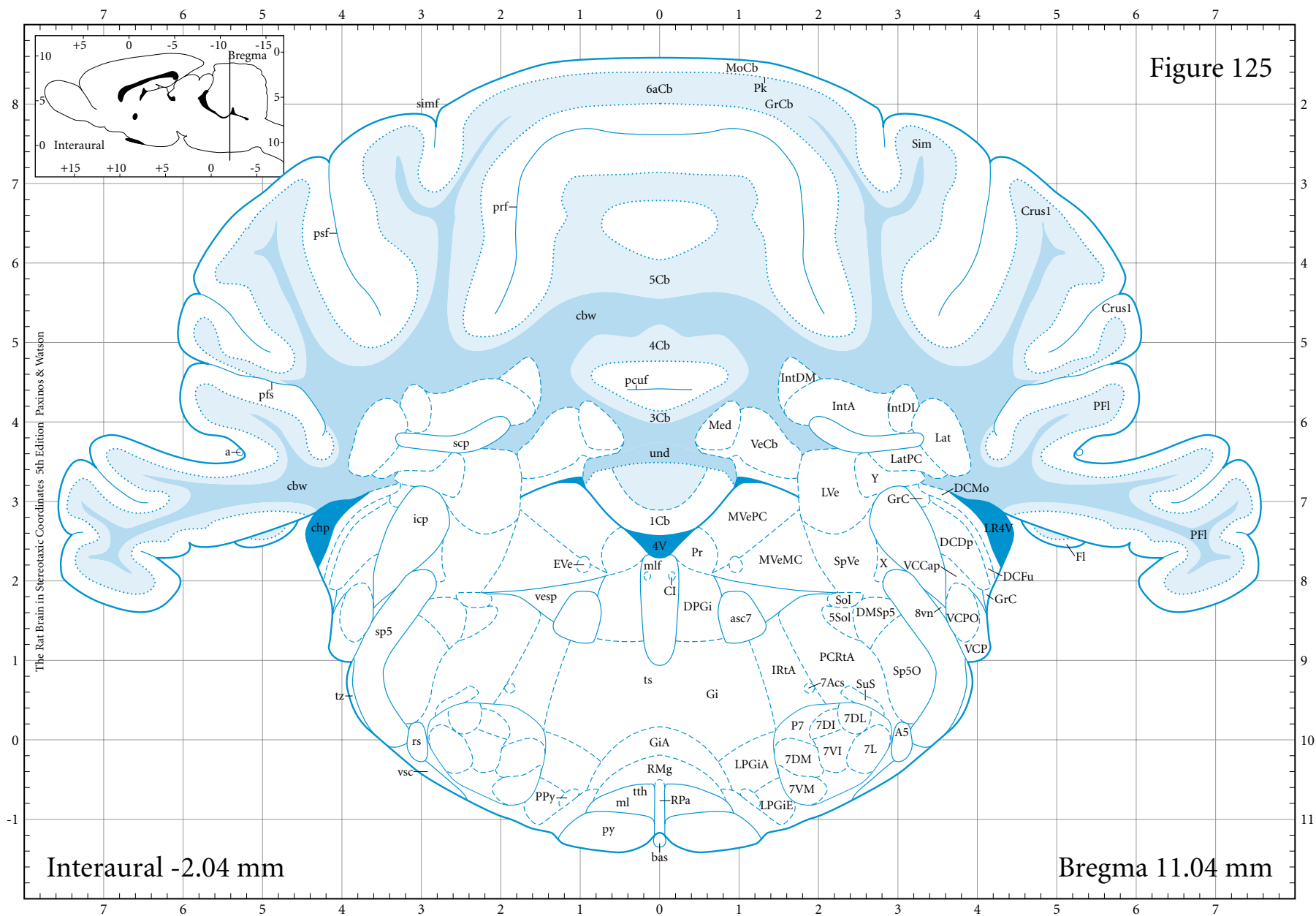


Figure 125



1Cb 1st Cb lobule  
3Cb 3rd Cb lobule  
4Cb 4th Cb lobule  
4V 4th ventricle  
5Cb 5th Cb lobule  
5Sol trig sol trans zn  
6aCb 6a Cb lobule  
7Acs mo 7 accessory

7DI 7 dors intermed  
7DL 7 nu dorsolat  
7DM 7 dorsomedial  
7L 7 nu lateral  
7VI 7 nu vent intermed  
7VM 7 nu ventromedial  
8cn cochlear root 8 n  
8vn vestib root 8 n

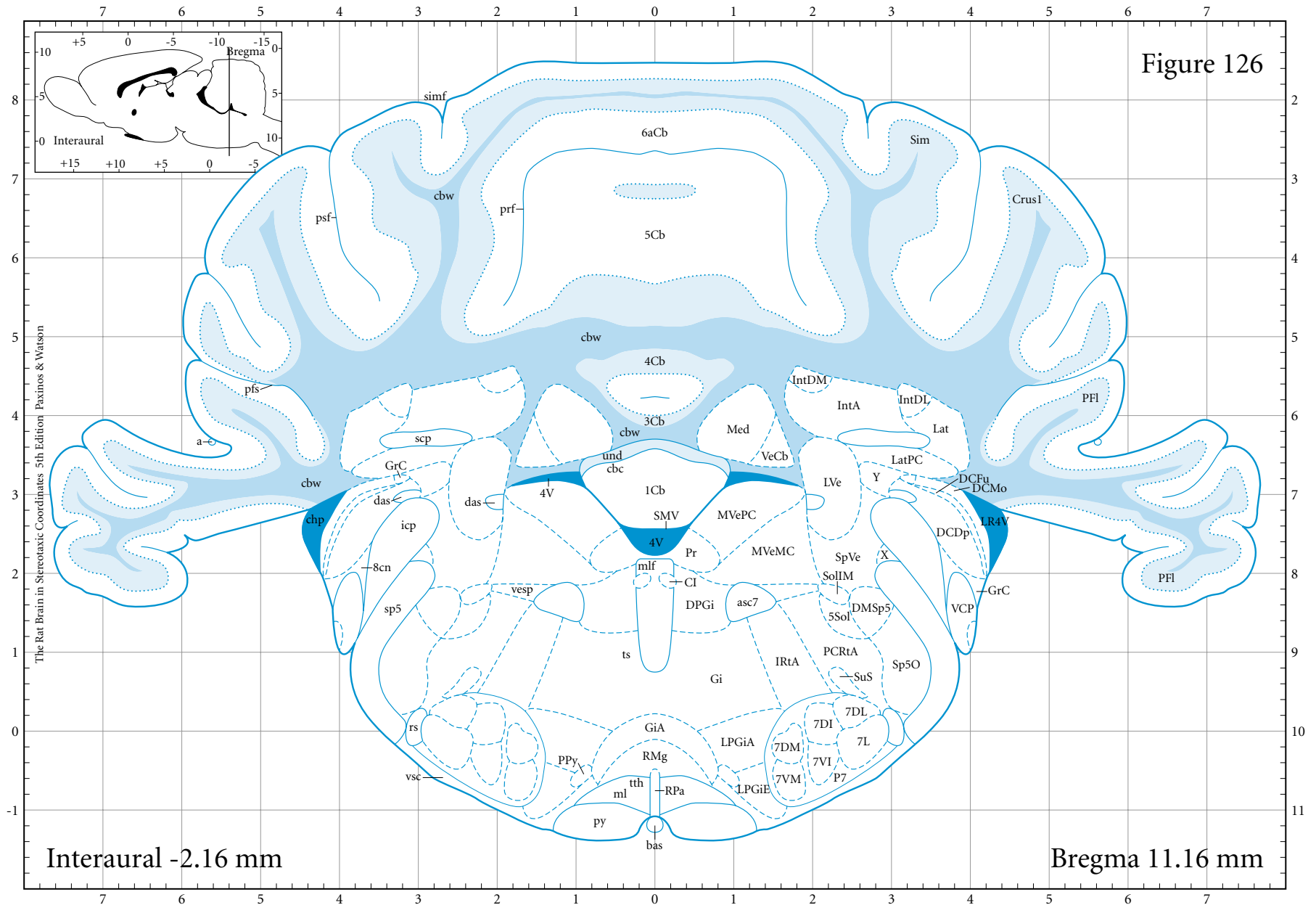
a artery  
A5 A5 noradr cells  
asc7 asc fibers of 7 n  
bas basilar artery  
cbc cerebellar comm  
cbw cereb white mat  
chp choroid plexus  
CI caud interstit mlf

Crus1 crus 1 ansiform  
das dors acoustic str  
DCDp dors coch dp core  
DCFu dors coch fusiform  
DCMo dors coch molec  
DMSp5 dorsomed sp 5 nu  
DPGi dors paragigantoc  
Eve nu efferents 8vn

Fl flocculus  
Gi gigantocell ret nu  
GiA gigantocell alpha  
GrC granule cochlear  
GrCb granule layer  
icp inf cerebellar ped  
IntA interposed ant  
IntDL interpos dorsolat

IntDM interpos dorsomed  
IRTA intermed rt alpha  
GiA gigantocell alpha  
Lat lat cerebellar nu  
LatPC lat Cb parvicell  
LPGiA lat paragigcel alph  
LPGiE lat paragigcel ext  
LR4V lat recess 4V  
IVe lat vestibular nu

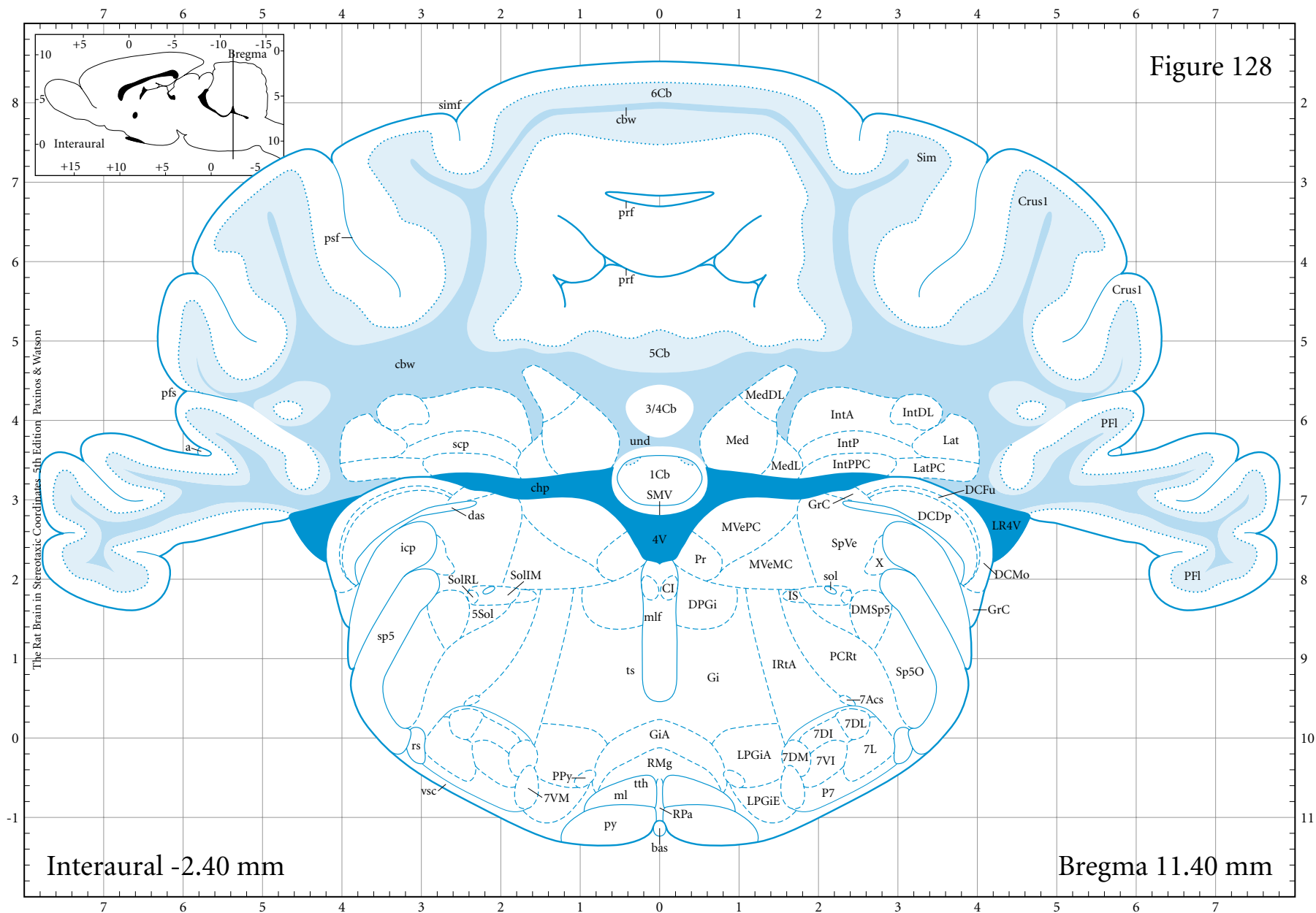
VCP vent cochlear post  
VCPO VCP octopus cells  
VeCb vestibulocereb nu  
vesp vent spinal tr  
vsc vent spinocer tr  
X nu X  
Y nu Y







1Cb 1st Cb lobule	7DM 7 dorsomedial	das dors acoustic str	icp inf cerebellar ped	LPGiA lat paragigcel alph	MVePC med vestib parvi	RMg raphe magnus nu	SolRL Sol rolstrolat
3/4Cb 3rd&4th Cb lob	7L 7 nu lateral	DCDp dors coch dp core	IntA interposed ant	LPGiE lat paragigcel ext	PCRt parvicell ret nu	RPa raphe pallidus nu	sp5 sp trigeminal tr
4V 4th ventricle	7VI 7 nu vent intermed	DCFu dors coch fusiform	IntDL interpos dorsolat	LR4V lat recess 4V	PfI paraflocculus	rs rubrospinal tract	Sp5O spinal 5 oral
5Cb 5th Cb lobule	7VM 7 nu ventromedial	DCMo dors coch molec	IntP interpos post	Med med cerebellar nu	pfs paraflocc sulcus	scp sup cerebellar ped	SpVe spinal vestib nu
5Sol trig sol trans zn	bas basilar artery	DMSp5 dorsomed sp 5 nu	IntPPC interpos pos parv	MedDL med Cb dorsolat	PPy parapyramidal nu	simf simple lobule	ts tectospinal tract
6Cb 6th Cb lobule	cbw cereb white mat	DPGi dors paragigantoc	IRtA intermed rt alpha	MedL med Cb lateral	Pr prepositus nu	simf simplex fissure	tth trigeminothal tr
7Acs mo t accessory	chp choroid plexus	Gi gigantocell ret nu	IS inf salivatory nu	ml medial lemniscus	prf primary fissure	SMV sup medull velum	und uncinate fasc dec
7DI 7 dors intermed	CI caud interstit mlf	GiA gigantocell alpha	Lat lat cerebellar nu	mlf med long fasc	psf post superior fiss	sol solitary tract	vsc vent spinocer tr
7DL 7 nu dorsolat	Crus1 crus 1 ansiform	GrC granule cochlear	LatPC lat Cb parvicell	MVeMC med vestib magno	py pyramidal tract	SolIM Sol intermediate	X nu X







SolRL Sol rolstrolat  
SolV Sol ventral  
sp5 sp trigeminal tr  
Sp5I spinal 5 interpolar  
Sp5O spinal 5 oral  
SpVe spinal vestib nu  
ts tectospinal tract  
vsc vent spinocer tr  
X nu X

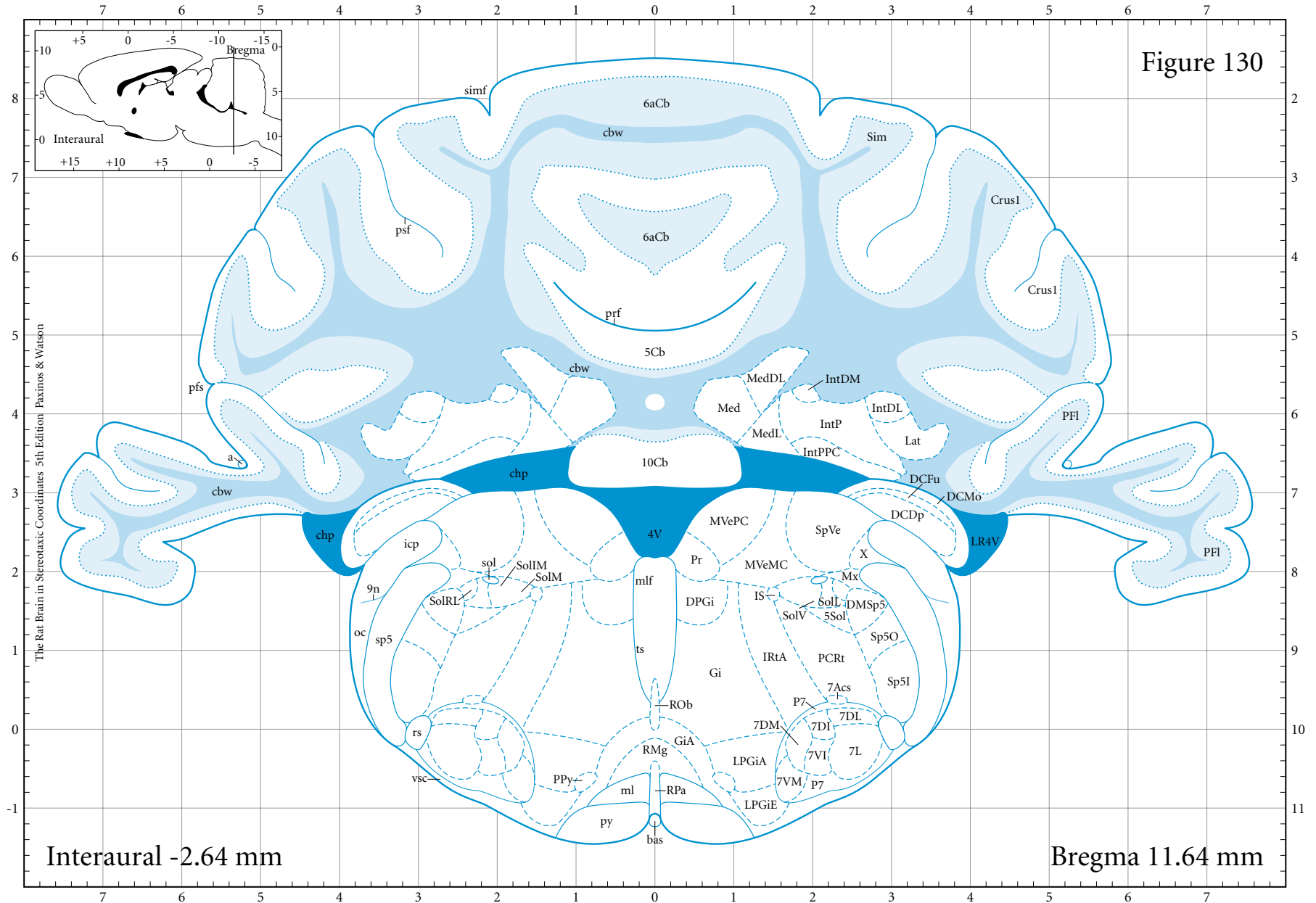
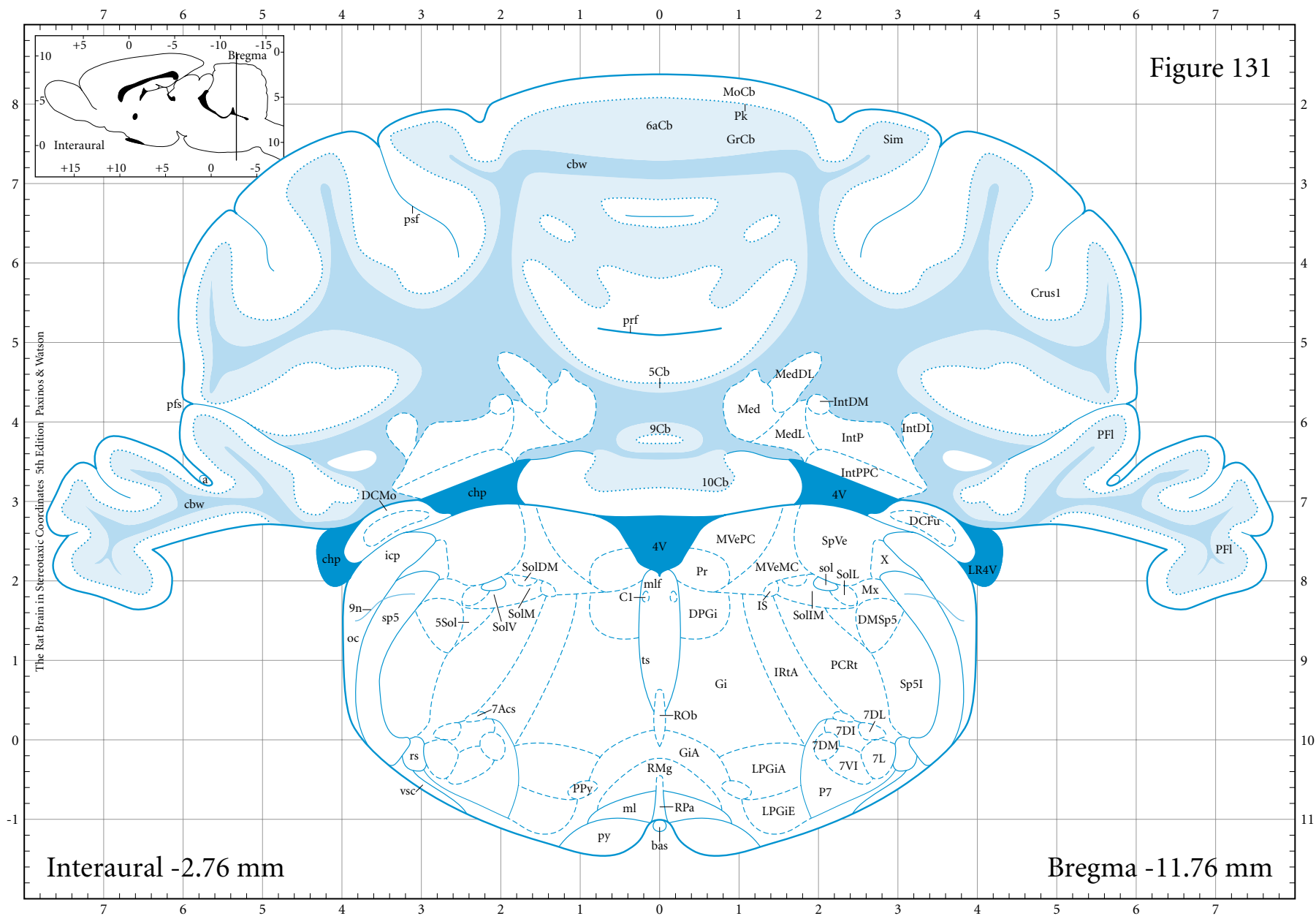


Figure 131



4V 4th ventricle	7VI 7 nu vent intermed	Crus1 crus 1 ansiform	IntDM interpos dorsomed	ml medial lemniscus	PfI paraflocculus	ROb raphe obscurus nu	SolV Sol ventral
5Cb 5th Cb lobule	9Cb 9th Cb lobule	DCFu dors coch fusiform	IntP interpos post	mlf med long fasc	pfs paraflocc sulcus	RPa raphe pallidus nu	sp5 sp trigeminal tr
5Sol trig sol trans zn	9n glossopharyngeal n	DCMo dors coch molec	IRtA intermed rt alpha	MoCb molecular layer Cb	Pk Purkinje cells	rs rubrospinal tract	Sp5I spinal 5 interpolar
6aCb 6a Cb lobule	10Cb 10th Cb lobule	DMSp5 dorsomed sp 5 nu	IS inf salivatory nu	MVeMC med vestib magno	PPy parapyramidal nu	Sim simple lobule	SpVe spinal vestib nu
7Acs mo t accessory	a artery	DPGi dors paragigantoc	LPGIA lat paragigcel alph	MVePC med vestib parvi	Pr prepositus nu	sol solitary tract	ts tectospinal tract
7DI 7 dors intermed	bas basilar artery	Gi gigantocell ret nu	LPGIE lat paragigcel ext	Mx matrix region	prf primary fissure	SolDM Sol dorsomedial	vsc vent spinocer tr
7DL 7 nu dorsolat	C1 C1 adren cells	GiA gigantocell alpha	LR4V lat recess 4V	oc olivocerebellar tr	psf post superior fiss	SolIM Sol intermediate	X nu X
7DM 7 dorsomedial	cbw cereb white mat	icp inf cerebellar ped	Med med cerebellar nu	P7 perifacial zone	py pyramidal tract	SolL Sol lateral	
7L 7 nu lateral	chp choroid plexus	IntDL interpos dorsolat	MedDL med Cb dorsolat	PCRt parvicell ret nu	RMg raphe magnus nu	SolM Sol medial	

4V 4th ventricle  
 5Sol trig sol trans zn  
 6aCb 6a Cb lobule  
 7Acs mo t accessory  
 7DL 7 nu dorsolat  
 7L 7 nu lateral  
 7V1 7 nu vent intermed  
 9Cb 9th Cb lobule  
 9n glossopharyngeal n  
 10Cb 10th Cb lobule  
 10n vagus n  
 bas basilar artery  
 C1 C1 adren cells  
 cbw cereb white mat  
 chp choroid plexus  
 Crus1 crus 1 ansiform  
 Crus2 crus 2 ansiform  
 DMSP5 dorsomed sp 5 nu  
 DPGi dors paragigantoc  
 EF epifascicular nu  
 Gi gigantocell ret nu  
 GiA gigantocell alpha  
 icf intercurel fissure  
 icp inf cerebellar ped  
 IntDL interpos dorsolat  
 IntP interpos post  
 IRTA intermed rt alpha  
 IS inf salivatory nu  
 LPGi lat paragig cell  
 LPGiE lat paragigcel ext  
 LR4V lat recess 4V  
 Med med cerebellar nu  
 MedDL med Cb dorsolat  
 ml medial lemniscus  
 mlf med long fasc  
 MVeMC med vestib magno  
 MVePC med vestib parvi  
 Mx matrix region  
 oc olivocerebellar tr  
 PCRt parvicell ret nu  
 PFI paraflocculus  
 plf posterolat fissure  
 PM paramedian lobule  
 PPy parapyramidal nu  
 Pr prepositus nu  
 psf post superior fiss  
 py pyramidal tract  
 RMg raphe magnus nu  
 ROb raphe obscurus nu  
 RPa raphe pallidus nu  
 rs rubrospinal tract  
 Sim simple lobule  
 sol solitary tract  
 SolDM Sol dorsomedial  
 SolIM Sol intermediate  
 SolL Sol lateral  
 SolM Sol medial  
 SolV Sol ventral  
 sp5 sp trigeminal tr  
 Sp5I spinal 5 interpoar  
 SpVe spinal vestib nu  
 ts tectospinal tract  
 vsc vent spinocer tr  
 X nu X

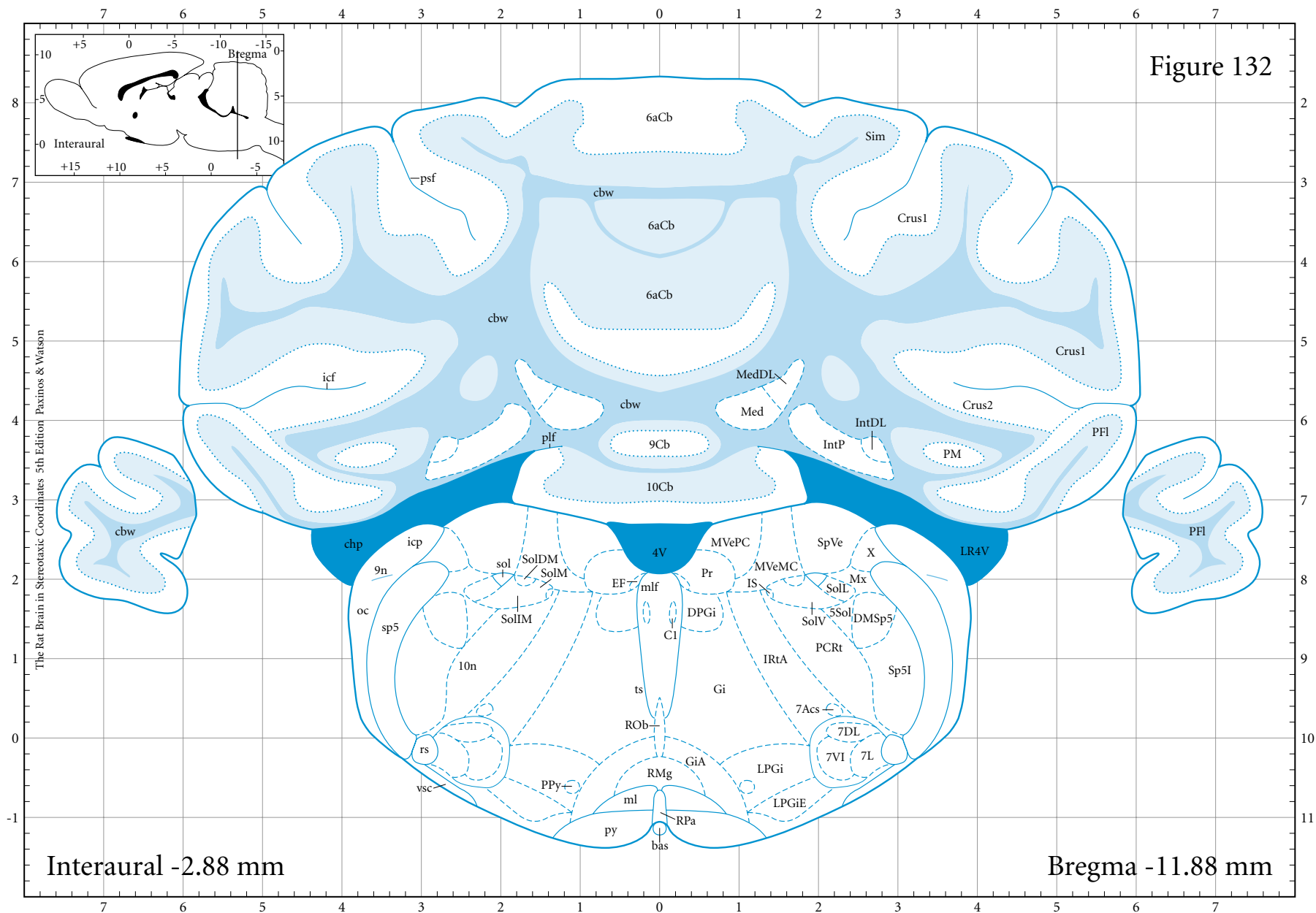
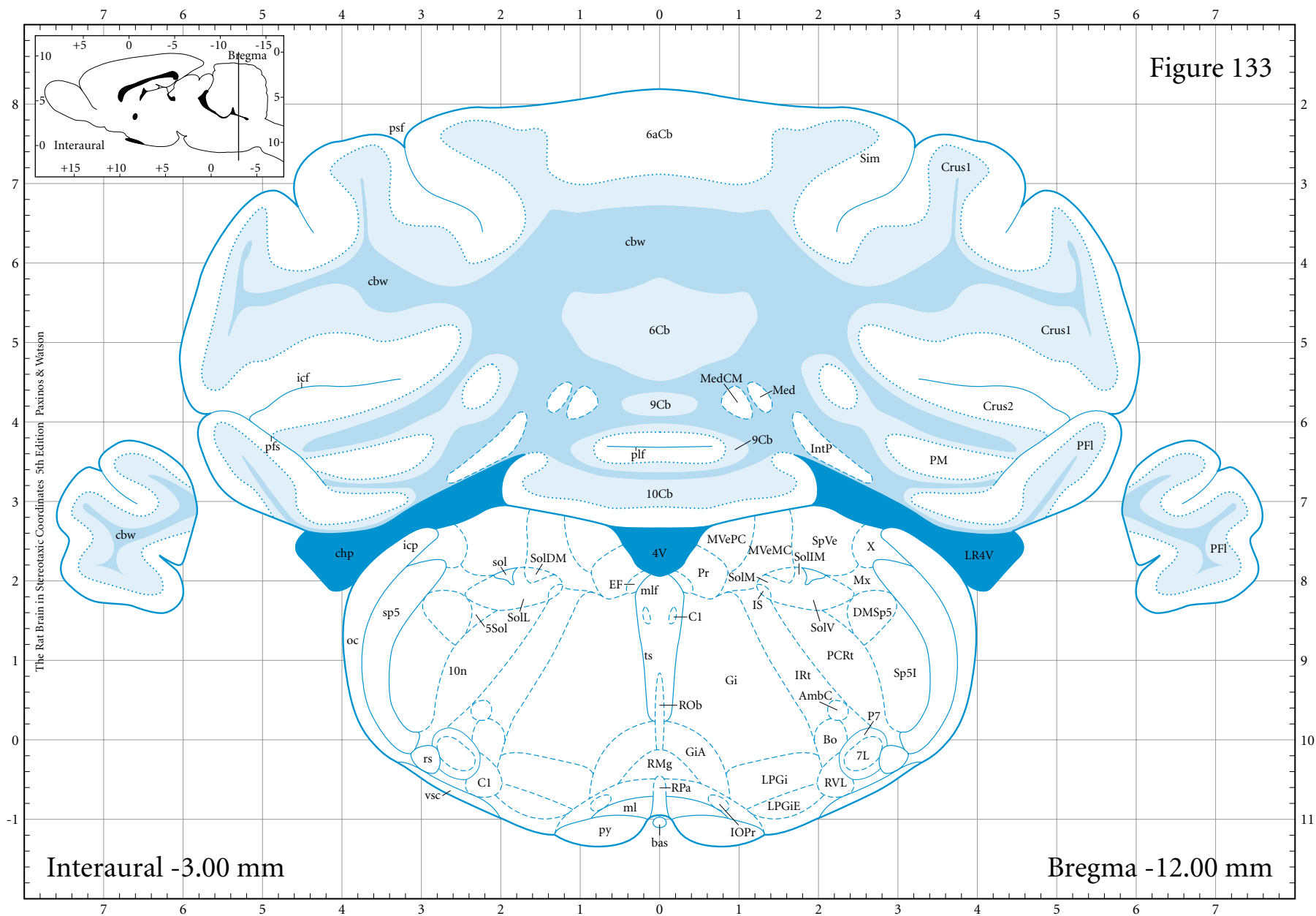


Figure 133



4V 4th ventricle  
5Sol trig sol trans zn  
6aCb 6a Cb lobule  
6Cb 6th Cb lobule  
7L 7 nu lateral  
9Cb 9th Cb lobule  
10Cb 10th Cb lobule  
10n vagus n

AmbC ambig compact  
bas basilar artery  
Bo Botzinger complex  
C1 C1 adren cells  
cbw cereb white mat  
chp choroid plexus  
Crus1 crus 1 ansiform  
Crus2 crus 2 ansiform

DMSp5 dorsomed sp 5 nu  
EF epifascicular nu  
Gi gigantocell ret nu  
GiA gigantocell alpha  
LPGiE lat paragig cell ext  
LR4V lat recess 4V  
Med med cerebellar nu  
IntP interpos post  
IOPr IO principal nu

IRt intermed ret nu  
IS inf salivatory nu  
LPGi lat paragig cell  
LPGiE lat paragig cell ext  
LR4V lat recess 4V  
Med med cerebellar nu  
MedCM med Cb caudomed  
ml medial lemniscus

mlf med long fasc  
MVeMC med vestib magno  
MVePC med vestib parvi  
Mx matrix region  
oc olivocerebellar tr  
P7 perifacial zone  
PCRt parvicell ret nu  
PFI parafloroculus

pfs parafloroculus  
plf posterolat fissure  
PM paramedian lobule  
Pr prepositus nu  
psf post superior fiss  
py pyramidal tract  
RMg raphe magnus nu  
ROB raphe obscurus nu

RPa raphe pallidus nu  
rs rubrospinal tract  
RVL rostroventrolat rt  
Sim simple lobule  
sol solitary tract  
SolDM Sol dorsomedial  
SolIM Sol intermediate  
SolM Sol medial

SolRL Sol rostral tract  
SolV Sol ventral  
sp5 sp trigeminal tr  
Sp5I spinal 5 interpolar  
SpVe spinal vestib nu  
ts tectospinal tract  
vsc vent spinocer tr  
X nu X

3Cb 3rd Cb lobule	Bo Botzinger complex	GiV gigantocell vent	LPGi lat paragig cell	oc olivocerebellar tr	psf post superior fiss	SolDM Sol dorsomedial	ts tectospinal tract
4V 4th ventricle	C1 C1 adren cells	icf intercurel fissure	LPGiE lat paragigcel ext	P7 perifacial zone	py pyramidal tract	SolIM Sol intermediate	vsc vent spinocer tr
5Sol trig sol trans zn	cbw cereb white mat	icp inf cerebellar ped	LR4V lat recess 4V	PCRt parvicell ret nu	RMg raphe magnus nu	SolL Sol lateral	X nu X
6bCb 6b Cb lobule	chp choroid plexus	IOD IO dorsal nu	mlf med long fasc	PFI parafofoculus	ROB raphe obscurus nu	SolM Sol medial	
6cCb 6c Cb lobule	Crus1 crus 1 ansiform	IOM IO medial nu	MoCb molecu layer Cb	pfs parafofoc sulcus	RPa raphe pallidus nu	SolRL Sol rostrolat	
7L 7 nu lateral	Crus2 crus 2 ansiform	IOPr IO principal nu	MVeMC med vestib magno	Pk Purkinje cells	rs rubrospinal tract	SolV Sol ventral	
10Cb 10th Cb lobule	DMSp5 dorsomed sp 5 nu	IRt intermed ret nu	MVePC med vestib parvi	plf posterolat fissure	RVL rostroventrolat rt	sp5 sp trigeminal tr	
AmbC ambig compact	EF epifascicular nu	IS inf salivatory nu	PM paramedian lobule	Pr prepositus nu	Sim simple lobule	Sp5I spinal 5 interpolar	
bas basilar artery	Gi gigantocell ret nu	JxO juxtaolivary nu	Mx matrix region		sol solitary tract	SpVe spinal vestib nu	

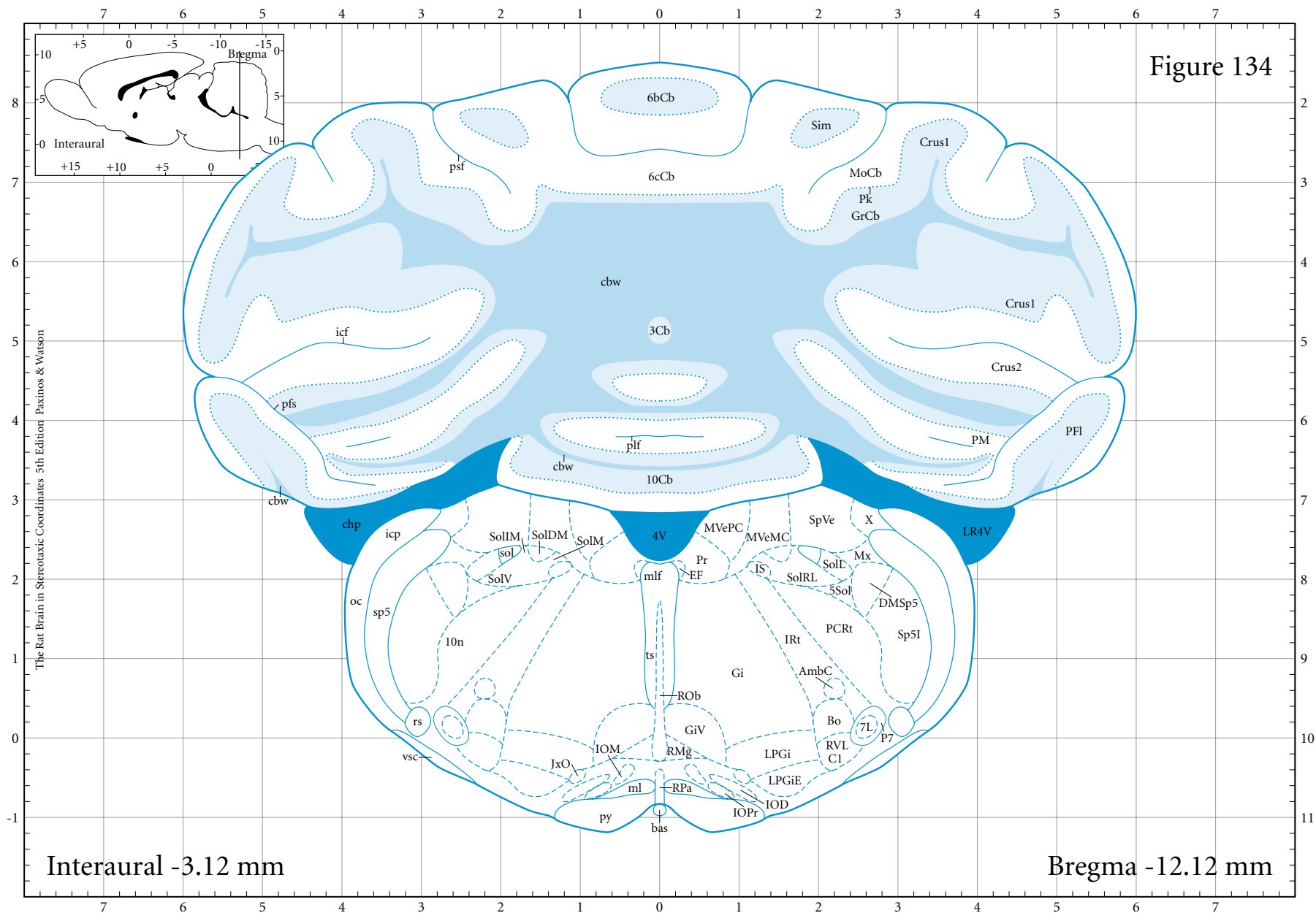
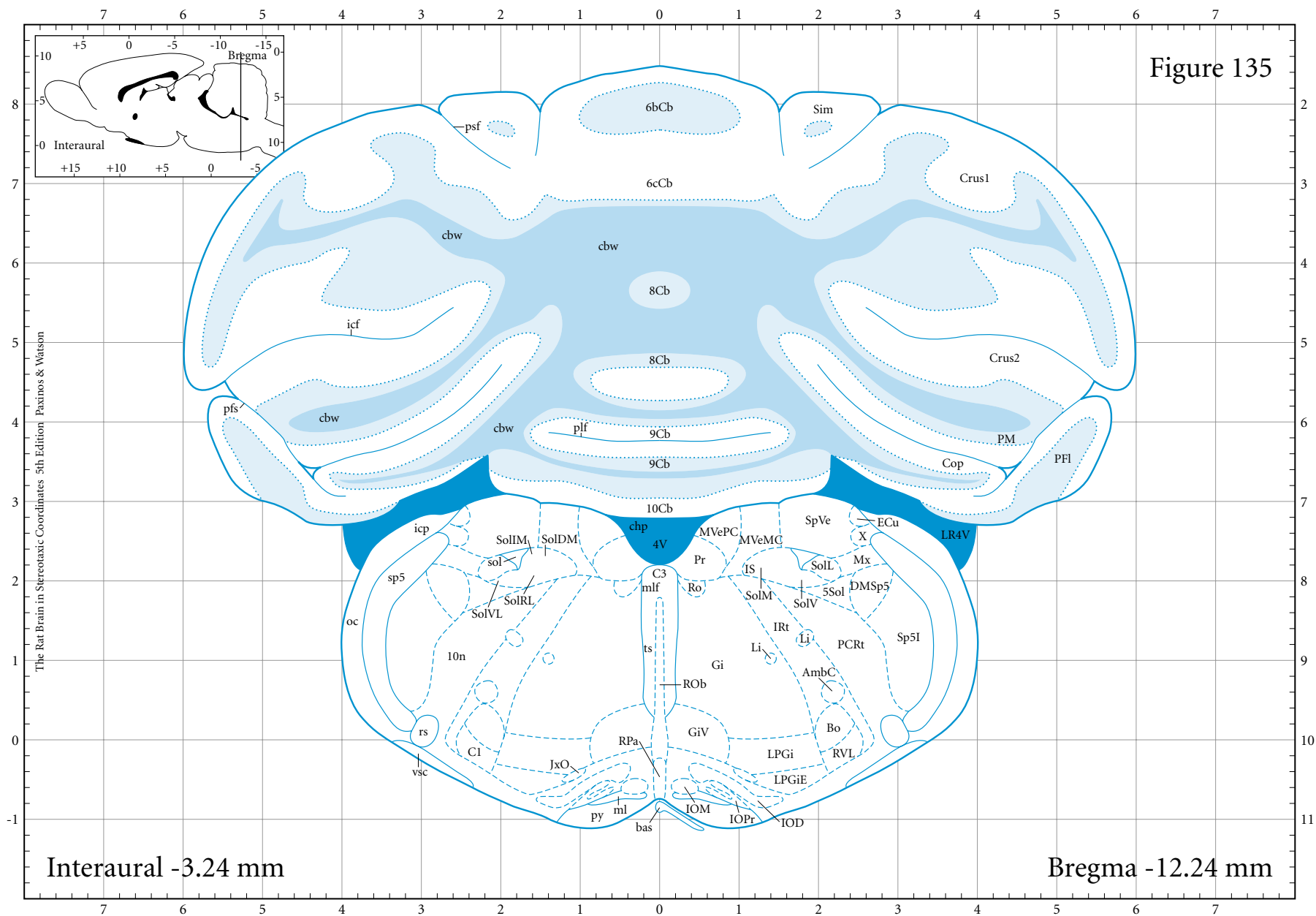




Figure 135



V 4th ventricle  
5Sol trig sol trans zn  
6bCb 6b Cb lobule  
6cCb 6c Cb lobule  
8Cb 8th Cb lobule  
9Cb 9th Cb lobule  
10Cb 10th Cb lobule  
10n vagus n  
AmbC ambig compact

bas basilar artery  
Bo Botzinger complex  
C1 C1 adren cells  
C3 C3 adren cells  
cbw cereb white mat  
chp choroid plexus  
Cop copula of pyramis  
Crus1 crus 1 ansiform  
Crus2 crus 2 ansiform

DMSp5 dorsomed sp 5 nu  
ECu ext cuneate nu  
Gi gigantocell ret nu  
GiV gigantocell vent  
icf intercruar fissure  
icp inf cerebellar ped  
IOD IO dorsal nu  
IOM IO medial nu  
IOPr IO principal nu

IRt intermed ret nu  
IS inf salivatory nu  
JxO juxtaolivary nu  
Li linear nu  
LPGi lat paragig cell  
LPGIE lat paragigcel ext  
LR4V lat recess 4V  
ml medial lemniscus  
mlf med long fasc

MVeMC med vestib magno  
MVePC med vestib parvi  
Mx matrix region  
oc olivocerebellar tr  
PCRt parvicell ret nu  
PFI parafloroculus  
pfs parafloroc sulcus  
plf posterolat fissure  
PM paramedian lobule

Pr prepositus nu  
psf post superior fiss  
py pyramidal tract  
Ro nu of Roller  
ROB raphe obscurus nu  
RPa raphe pallidus nu  
rs rubrospinal tract  
RVL rostroventrolat rt  
Sim simple lobule

sol solitary tract  
SolDM Sol dorsomedial  
SolIM Sol intermediate  
SolL Sol lateral  
SolM Sol medial  
SolV Sol ventral  
SolVL Sol ventrolat  
sp5 sp trigeminal tr  
Sp5I spinal 5 interpolar

SpVe spinal vestib nu  
ts tectospinal tract  
vsc vent spinocer tr  
X nu X



4V 4th ventricle	AmbC ambig compact	DMSp5 dorsomed sp 5 nu	IRt intermed ret nu	MVePC med vestib parvi	py pyramidal tract	SolIM Sol intermediate	ts tectospinal tract
5Sol trig sol trans zn	Bo Botzinger complex	ECu ext cuneate nu	JxO juxtaolivary nu	Mx matrix region	Ro nu of Roller	SolL Sol lateral	vsc vent spinocer tr
6bCb 6b Cb lobule	C1 C1 adren cells	Gi gigantocell ret nu	Li linear nu	oc olivocerebellar tr	ROb raphe obscurus nu	SolM Sol medial	X nu X
6cCb 6c Cb lobule	C3 C3 adren cells	GiV gigantocell vent	LPGi lat paragig cell	PCRt parvicell ret nu	RPa raphe pallidus nu	SolRL Sol rostrlat	
8Cb 8th Cb lobule	cbw cereb white mat	icf intercrural fissure	LPGiE lat paragigcel ext	PfI parafofoculus	rs rubrospinal tract	SolV Sol ventral	
9Cb 9th Cb lobule	chp choroid plexus	icp inf cerebellar ped	LR4V lat recess 4V	plf posterolat fissure	RVL rostroventrolat rt	SolVL Sol ventrolat	
10Cb 10th Cb lobule	Cop copula of pyramis	IOD IO dorsal nu	ml medial lemniscus	PM paramedian lobule	sf 2ary fissure	sp5 sp trigeminal tr	
10N dorsal mo nu 10	Crus1 crus 1 ansiform	IOM IO medial nu	mlf med long fasc	pms paramedian sulcus	sol solitary tract	Sp5I spinal 5 interpolar	
10n vagus n	Crus2 crus 2 ansiform	IOPr IO principal nu	MVeMC med vestib magno	Pr prepositus nu	SolDM Sol dorsomedial	SpVe spinal vestib nu	

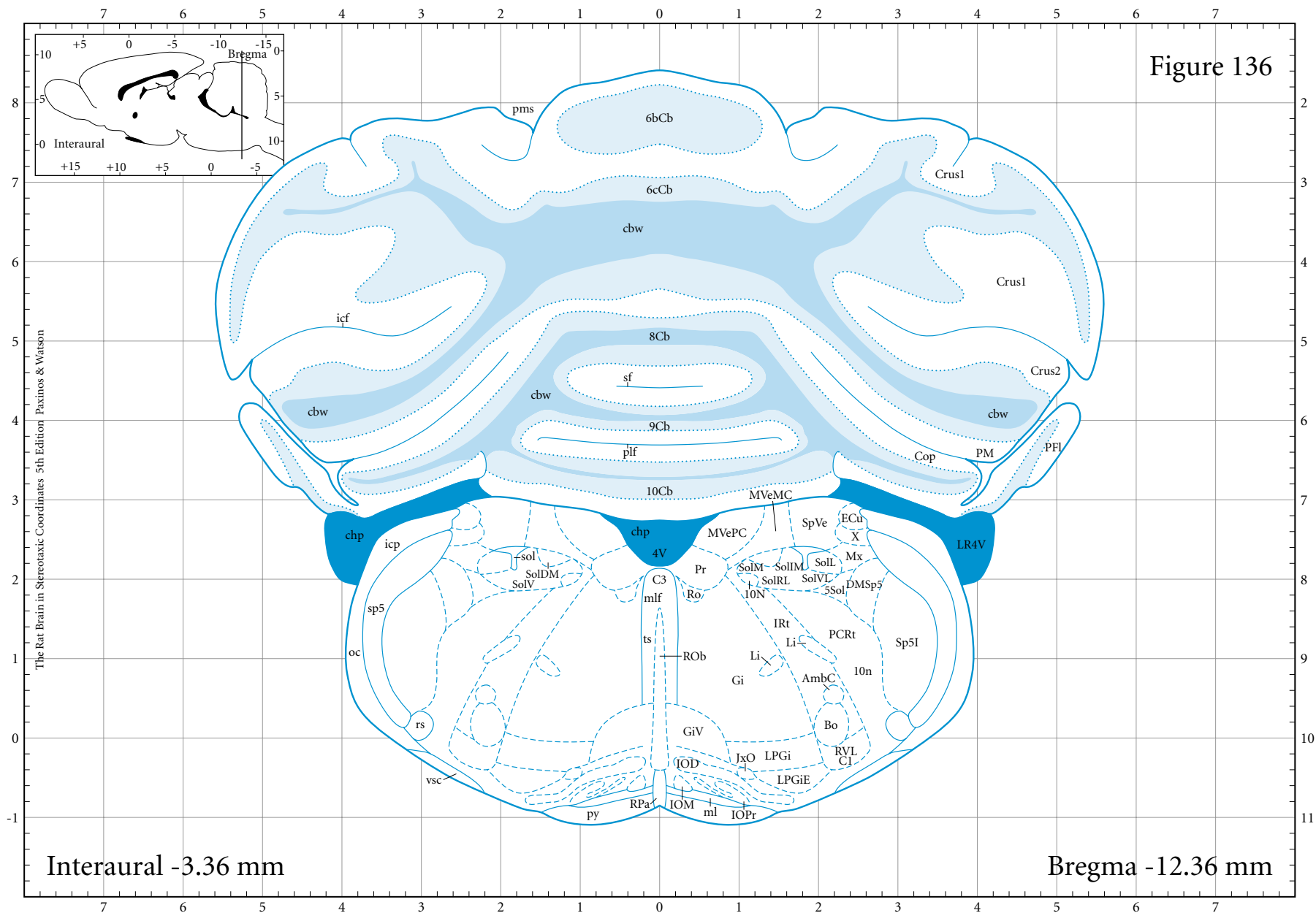
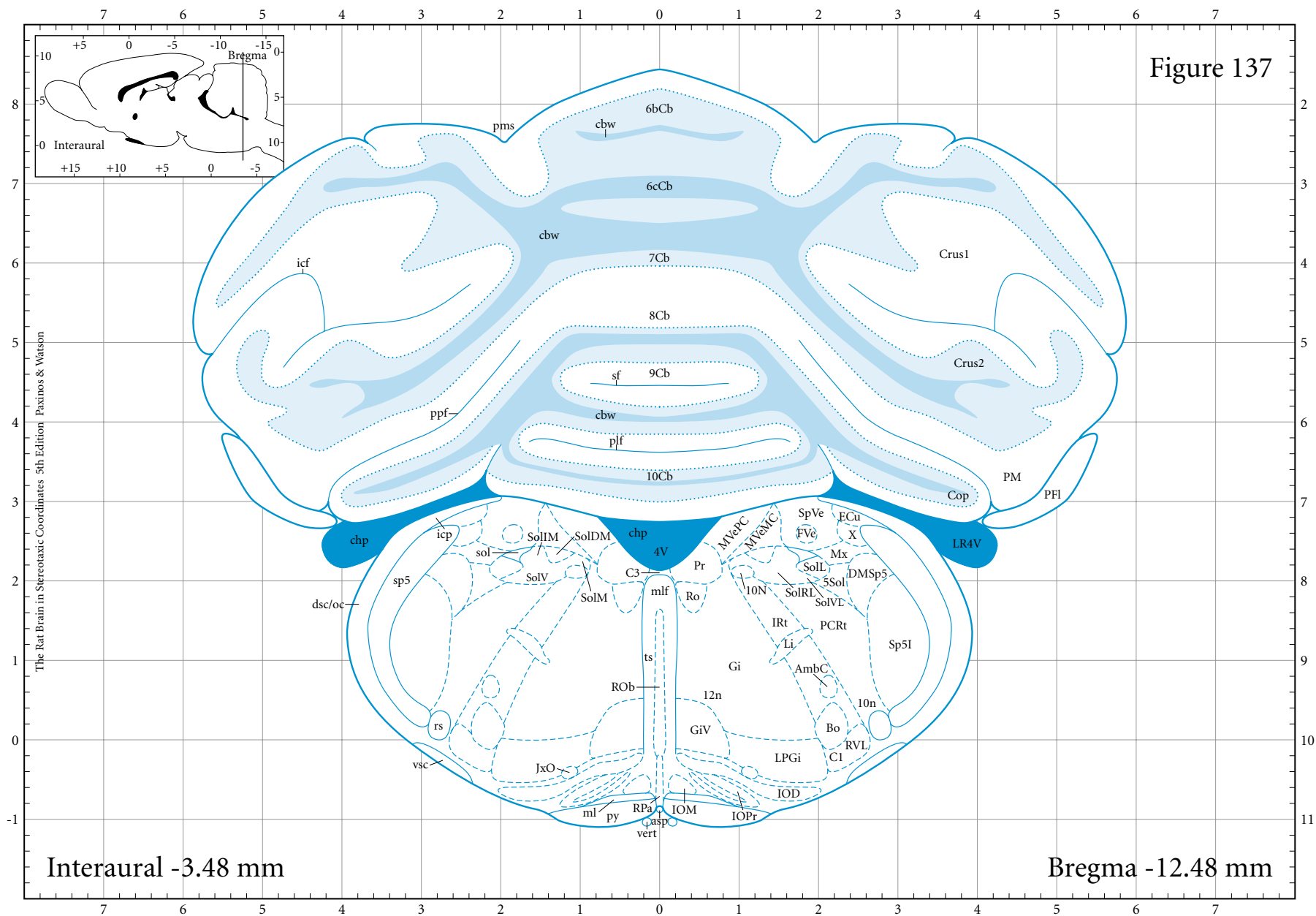


Figure 137



- |                        |                       |                           |                         |                        |                        |                         |                       |
|------------------------|-----------------------|---------------------------|-------------------------|------------------------|------------------------|-------------------------|-----------------------|
| 4V 4th ventricle       | 10n vagus n           | Cop copula of pyramis     | icf intercrural fissure | LR4V lat recess 4V     | pms paramedian sulcus  | sol solitary tract      | vert vertebral artery |
| 5Sol trig sol trans zn | 12n root of 12n       | Crus1 crus 1 ansiform     | icp inf cerebellar ped  | ml medial lemniscus    | ppf prepyramidal fiss  | SolDM Sol dorsomedial   | vsc vent spinocer tr  |
| 6bCb 6b Cb lobule      | AmbC ambig compact    | Crus2 crus 2 ansiform     | IOD IO dorsal nu        | mlf med long fasc      | Pr prepositus nu       | SolIM Sol intermediate  | X nu X                |
| 6cCb 6c Cb lobule      | asp ant spinal artery | DMSp5 dorsomed sp 5 nu    | IOM IO medial nu        | MVePC med vestib parvi | py pyramidal tract     | SolL Sol lateral        |                       |
| 7Cb 7th Cb lobule      | Bo Botzinger complex  | dsc/oc dors sp cer/ol cer | IOPr IO principal nu    | Mx matrix region       | Ro nu of Roller        | SolM Sol medial         |                       |
| 8Cb 8th Cb lobule      | C1 C1 adren cells     | ECu ext cuneate nu        | IRt intermed ret nu     | PCRt parvicell ret nu  | RPa raphe pallidus nu  | sp5 sp trigeminal tr    |                       |
| 9Cb 9th Cb lobule      | C3 C3 adren cells     | FVe F vestib group        | JxO juxtaolivary nu     | PfI parafofoculus      | RVL rostroventrolat rt | Sp5I spinal 5 interpoar |                       |
| 10Cb 10th Cb lobule    | cbw cereb white mat   | Gi gigantocell ret nu     | Li linear nu            | plf posterolat fissure |                        | SpVe spinal vestib nu   |                       |
| 10N dorsal mo nu 10    | chp choroid plexus    | GiV gigantocell vent      | LPGi lat paragig cell   | PM paramedian lobule   |                        | ts tectospinal tract    |                       |

4V 4th ventricle	AmbC ambig compact	DMSp5 dorsomed sp 5 nu	IOM IO medial nu	MVeMC med vestib magno	PrBo pre-Botzinger com	SolIM Sol intermediate	vsc vent spinocer tr
5Sol trig sol trans zn	C1 C1 adren cells	dsc/oc dors sp cer/ol cer	IOPr IO principal nu	MVePC med vestib parvi	py pyramidal tract	SolL Sol lateral	X nu X
6bCb 6b Cb lobule	C2 C2 adren cells	ECu ext cuneate nu	IRt intermed ret nu	Mx matrix region	Ro nu of Roller	SolM Sol medial	
7Cb 7th Cb lobule	cbw cereb white mat	FVe F vestib group	JxO juxtaolivary nu	PCRt parvicell ret nu	ROB raphe obscurus nu	SolV Sol ventral	
8Cb 8th Cb lobule	chp choroid plexus	Gi gigantocell ret nu	Li linear nu	plf posterolat fissure	RPa raphe pallidus nu	SolVL Sol ventrolat	
9Cb 9th Cb lobule	Cop copula of pyramis	GiV gigantocell vent	LPGi lat paragig cell	PM paramedian lobule	rs rubrospinal tract	sp5 sp trigeminal tr	
10Cb 10th Cb lobule	Crus1 crus 1 ansiform	icf intercrural fissure	LR4V lat recess 4V	pms paramedian sulcus	sf 2ary fissure	Sp5I spinal 5 interpolar	
10N dorsal mo nu 10	Crus2 crus 2 ansiform	icp inf cerebellar ped	ml medial lemniscus	ppf prepyramidal fiss	sol solitary tract	SpVe spinal vestib nu	
12N hypoglossal nu	CVL caudoventrolat tr	IOD IO dorsal nu	mlf med long fasc	Pr prepositus nu	SolDM Sol dorsomedial	ts tectospinal tract	

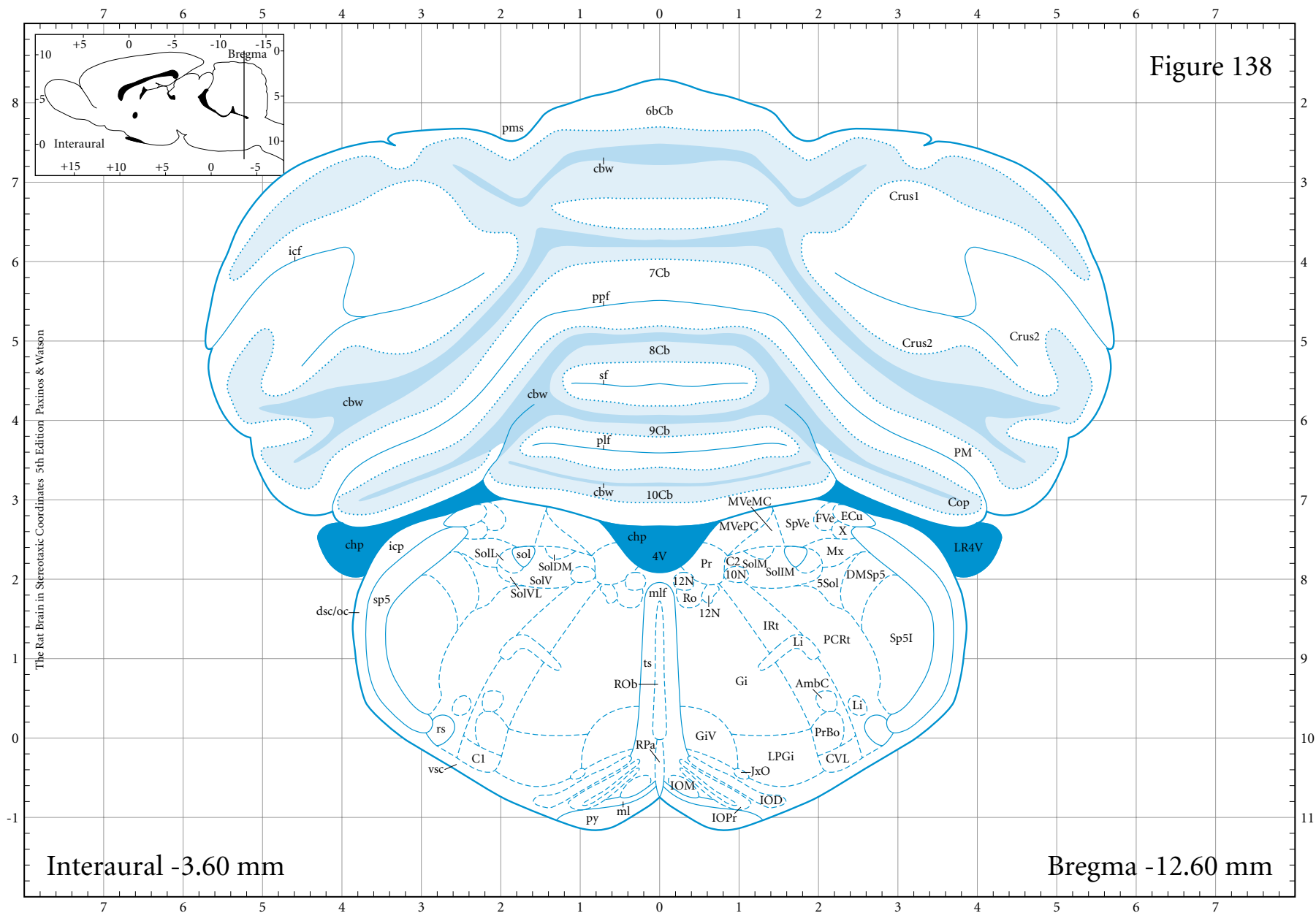
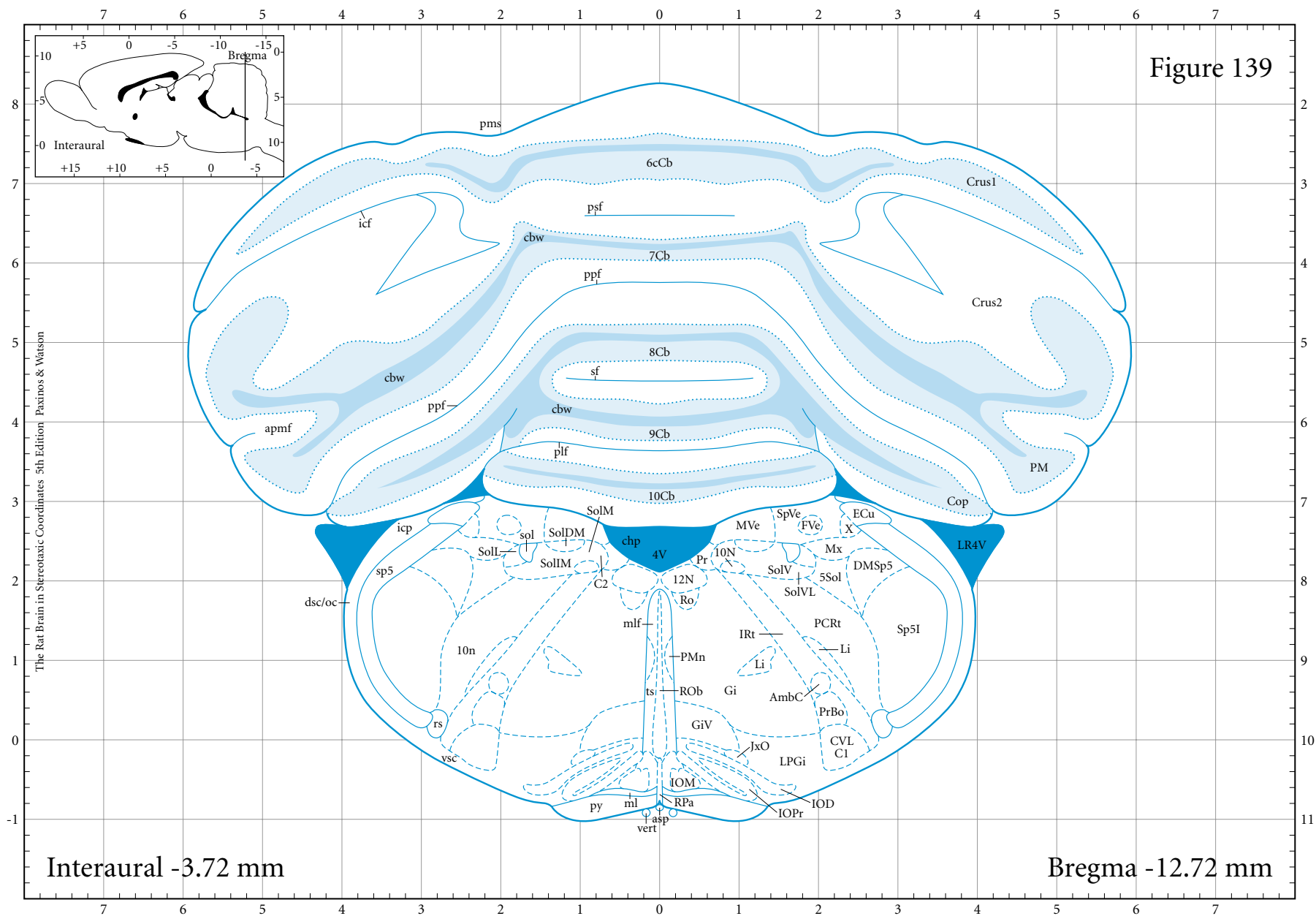
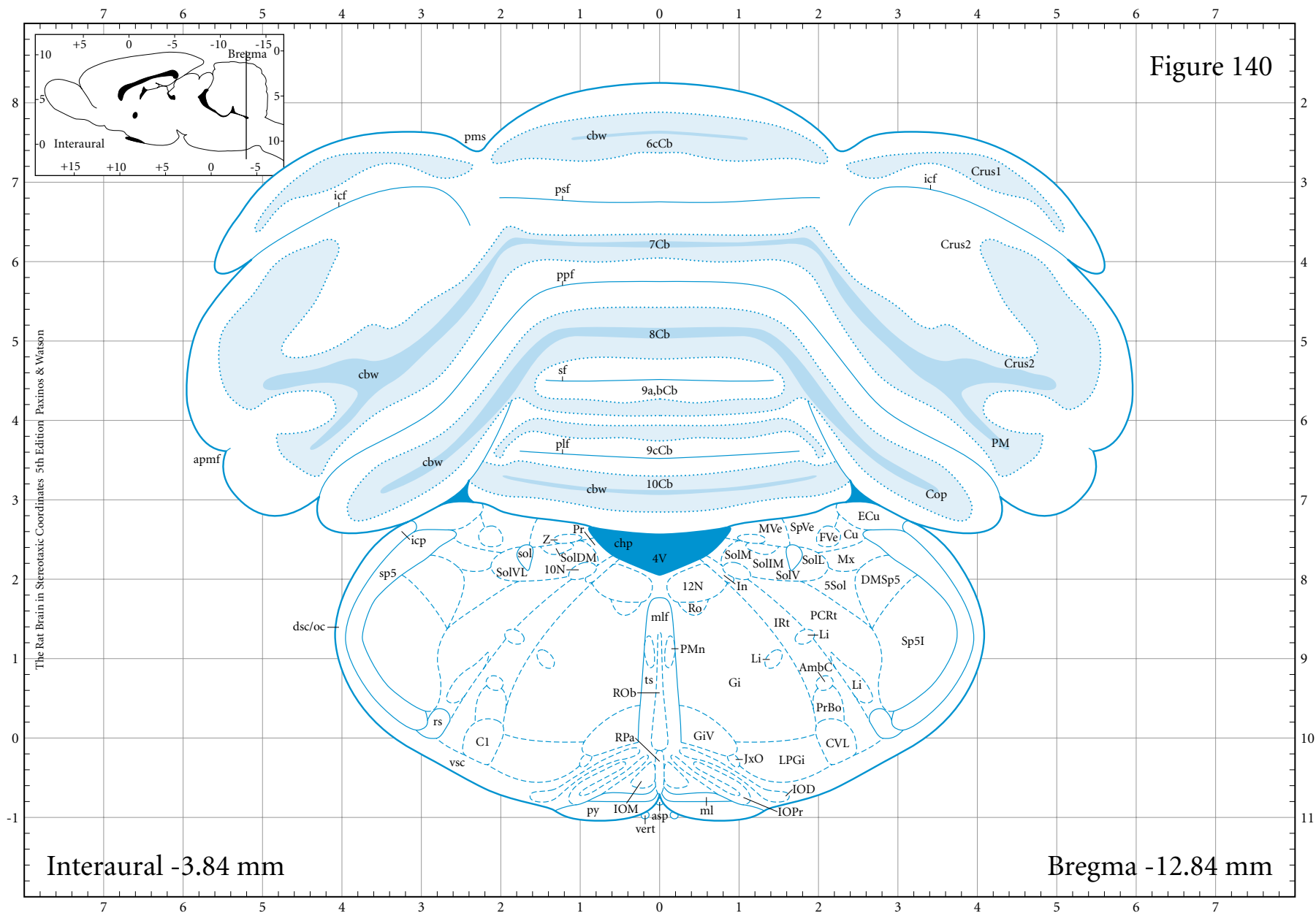


Figure 139



4V 4th ventricle	12N hypoglossal nu	Crus1 crus 1 ansiform	icf intercrural fissure	LR4V lat recess 4V	pms paramedian sulcus	sf 2ary fissure	Sp5I spinal 5 interpolar
5Sol trig sol trans zn	AmbC ambig compact	Crus2 crus 2 ansiform	icp inf cerebellar ped	ml medial lemniscus	ppf prepyramidal fiss	sol solitary tract	SpVe spinal vestib nu
6cCb 6c Cb lobule	apmf ansoparamed fiss	CVL caudoventrolat rt	IOD IO dorsal nu	mlf med long fasc	Pr prepositus nu	SolDM Sol dorsomedial	vert vertebral artery
7Cb 7th Cb lobule	asp ant spinal artery	DMSp5 dorsomed sp 5 nu	IOM IO medial nu	MVe med vestibular nu	PrBo pre-Botzinger com	SolIM Sol intermediate	vsc vent spinocer tr
8Cb 8th Cb lobule	C1 C1 adren cells	dsc/oc dors sp cer/ol cer	IOPr IO principal nu	Mx matrix region	py pyramidal tract	SolL Sol lateral	X nu X
9Cb 9th Cb lobule	C2 C2 adren cells	ECu ext cuneate nu	IRt intermed ret nu	PCRt parvicell ret nu	Ro nu of Roller	SolM Sol medial	
10Cb 10th Cb lobule	cbw cereb white mat	FVe F vestib group	JxO juxtaolivary nu	plf posterolat fissure	ROB raphe obscurus nu	SolV Sol ventral	
10N dorsal mo nu 10	chp choroid plexus	Gi gigantocell ret nu	Li linear nu	PM paramedian lobule	RPa raphe pallidus nu	SolVL Sol ventrolat	
10n vagus n	Cop copula of pyramis	GiV gigantocell vent	LPGi lat paragig cell	PMn paramedian ret nu	rs rubrospinal tract	sp5 sp trigeminal tr	

4V 4th ventricle	12N hypoglossal nu	Crus2 crus 2 ansiform	icf intercrural fissure	LPGi lat paragig cell	pms paramedian sulcus	rs rubrospinal tract	sp5 sp trigeminal tr
5Sol trig sol trans zn	AmbC ambig compact	Cu cuneate nu	icp inf cerebellar ped	ml medial lemniscus	ppf prepyramidal fiss	sf 2ary fissure	Sp5I spinal 5 interpolar
6Cb 6c Cb lobule	apmf ansoparamed fiss	CVL caudoventrolat rt	In intercalated nu	mlf med long fasc	Pr prepositus nu	sol solitary tract	SpVe spinal vestib nu
7Cb 7th Cb lobule	asp ant spinal artery	DMSp5 dorsomed sp 5 nu	IOD IO dorsal nu	MVe med vestibular nu	PrBo pre-Botzinger com	SolDM Sol dorsomedial	ts tectospinal tract
8Cb 8th Cb lobule	C1 C1 adren cells	dsc/oc dors sp cer/ol cer	IOM IO medial nu	Mx matrix region	psf post superior fiss	SolIM Sol intermediate	vert vertebral artery
9a,bCb 9th Cb lobule, a&b	cbw cereb white mat	ECu ext cuneate nu	IOPr IO principal nu	PCRt parvicell ret nu	py pyramidal tract	SolL Sol lateral	vsc vent spinocer tr
9cCb 9th Cb lobule, c	chp choroid plexus	FVe F vestib group	IRt intermed ret nu	plf posterolat fissure	Ro nu of Roller	SolM Sol medial	Z nu Z
10Cb 10th Cb lobule	Cop copula of pyramis	Gi gigantocell ret nu	JxO juxtaolivary nu	PM paramedian lobule	ROb raphe obscurus nu	SolV Sol ventral	
10N dorsal mo nu 10	Crus1 crus 1 ansiform	GiV gigantocell vent	Li linear nu	PMn paramedian ret nu	RPA raphe pallidus nu	SolVL Sol ventrolat	





4V 4th ventricle  
 5Sol trig sol trans zn  
 6Cb 6c Cb lobule  
 7Cb 7th Cb lobule  
 8Cb 8th Cb lobule  
 9a,bCb 9th Cb lobule, a&b  
 9cCb 9th Cb lobule, c  
 10Cb 10th Cb lobule  
 10N dorsal mo nu 10

10n vagus n  
 12N hypoglossal nu  
 AmbSL  
 apmf ansoparamed fiss  
 asp ant spinal artery  
 C1 C1 adren cells  
 C2 C2 adren cells  
 cbw cereb white mat  
 chp choroid plexus

Cop copula of pyramis  
 Crus2 crus 2 ansiform  
 Cu cuneate nu  
 CVL caudoventrolat rt  
 DPGi dors paragigantoc  
 dsc/oc dors sp cer/ol cer  
 ECu ext cuneate nu  
 Gi gigantocell ret nu  
 GiV gigantocell vent

icp inf cerebellar ped  
 InM intmed of medulla  
 IOD IO dorsal nu  
 IODM IO dorsomedial  
 IOM IO medial nu  
 IOPr IO principal nu  
 IRt intermed ret nu  
 Li linear nu  
 LPGi lat paragig cell

LRt lat reticular nu  
 ml medial lemniscus  
 mlf med long fasc  
 MVe med vestibular nu  
 Mx matrix region  
 Pa5 paratrigeminal nu  
 PCRt parvicell ret nu  
 plf posterolat fissure  
 PM paramedian lobule

PMn paramedian ret nu  
 pms paramedian sulcus  
 ppf prepyramidal fiss  
 psf post superior fiss  
 PSol parasolitary nu  
 py pyramidal tract  
 Ro nu of Roller  
 ROB raphe obscurus nu  
 RPa raphe pallidus nu

rs rubrospinal tract  
 RVRG rostral ventral rsp  
 sf 2ary fissure  
 sol solitary tract  
 SolDL Sol dorsolat  
 SolI Sol interstitial  
 SolIM Sol intermediate  
 SolL Sol lateral  
 SolM Sol medial

SolV Sol ventral  
 SolVL Sol ventrolat  
 sp5 sp trigeminal tr  
 Sp51 spinal 5 interpolar  
 SpVe spinal vestib nu  
 ts tectospinal tract  
 vert vertebral artery  
 vsc vent spinocer tr  
 Z nu Z

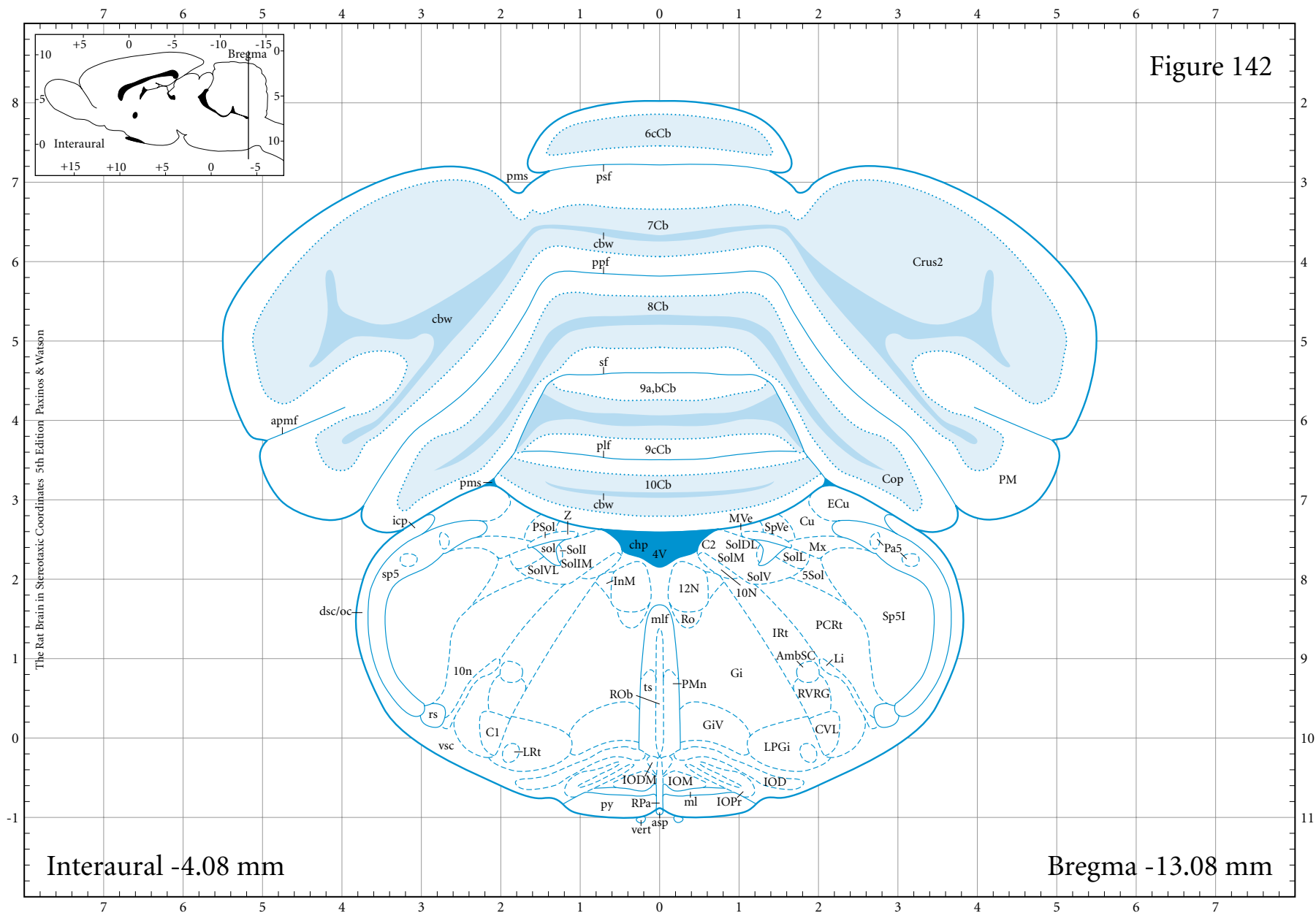
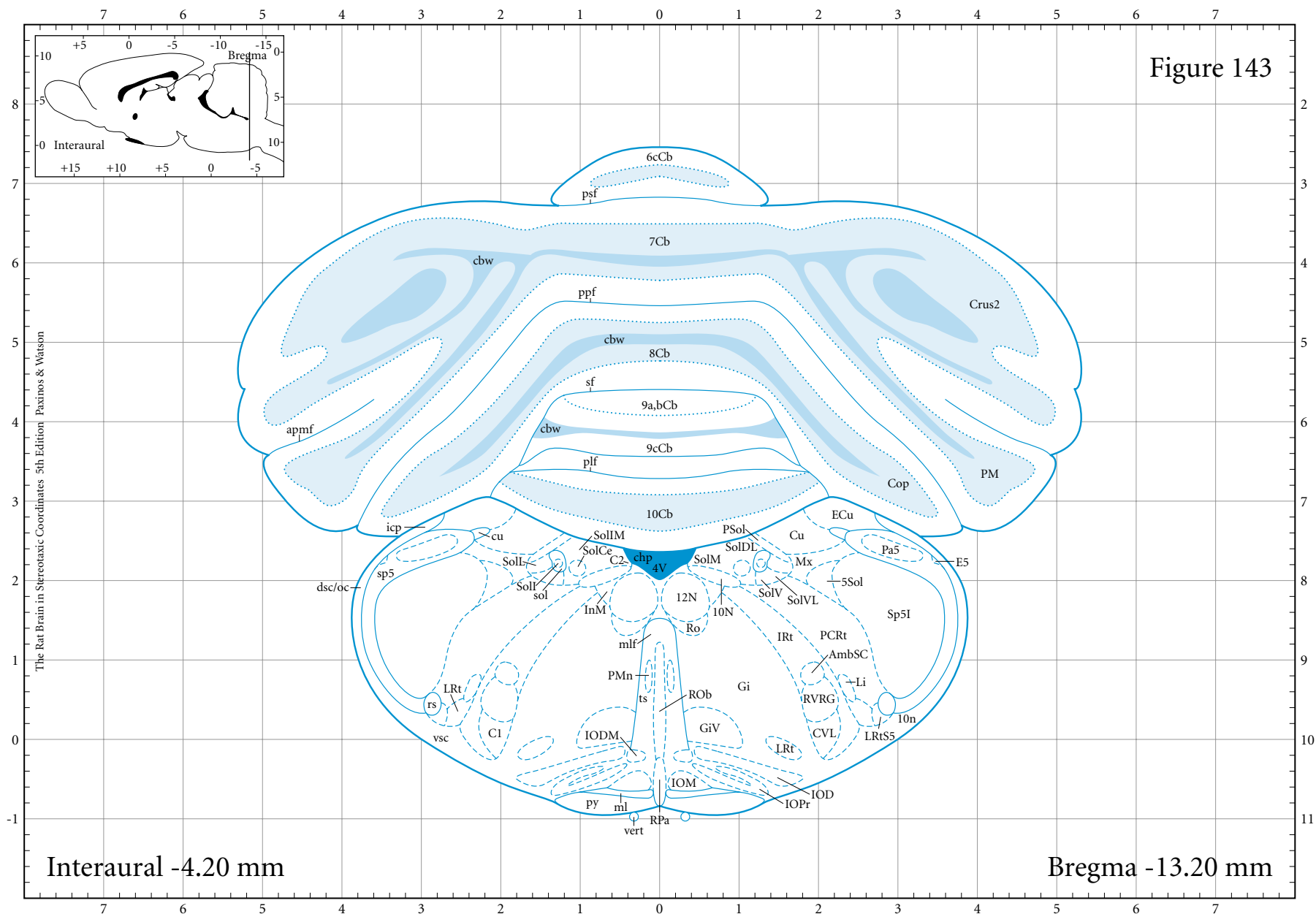




Figure 143



4V 4th ventricle	12N hypoglossal nu	Cu cuneate nu	InM intmed of medulla	ml medial lemniscus	psf post superior fiss	sol solitary tract	sp5 sp trigeminal tr
5Sol trig sol trans zn	AmbSC amb subcomp	cu cuneate fasciculus	IOD IO dorsal nu	mlf med long fasc	PSol parasolitary nu	SolCe Sol central	Sp5I spinal 5 interpolar
6Cb 6c Cb lobule	apmf ansoparamed fiss	CVL caudoventrolat rt	IODM IO dorsomedial	Mx matrix region	py pyramidal tract	SolDL Sol dorsolat	ts tectospinal tract
7Cb 7th Cb lobule	C1 C1 adren cells	dsc/oc dors sp cer/ol cer	IOM IO medial nu	Pa5 paratrigeminal nu	Ro nu of Roller	SolI Sol interstitial	vert vertebral artery
8Cb 8th Cb lobule	C2 C2 adren cells	E5 ectotrigeminal nu	IOPr IO principal nu	PCRt parvicell ret nu	ROB raphe obscurus nu	SolIM Sol intermediate	vsc vent spinocer tr
9a,bCb 9th Cb lobule, a&b	cbw cereb white mat	ECu ext cuneate nu	IRt intermed ret nu	plf posterolat fissure	RPa raphe pallidus nu	SolL Sol lateral	
9cCb 9th Cb lobule, c	chp choroid plexus	Gi gigantocell ret nu	Li linear nu	PM paramedian lobule	rs rubrospinal tract	SolM Sol medial	
10Cb 10th Cb lobule	Cop copula of pyramis	GiV gigantocell vent	LRT lat reticular nu	PMn paramedian ret nu	RVRG rostral ventral rsp	SolV Sol ventral	
10n vagus n	Crus2 crus 2 ansiform	icp inf cerebellar ped	LRTS5 lat retic sub5	ppf prepyramidal fiss	sf 2ary fissure	SolVL Sol ventrolat	

SolM Sol medial  
SolV Sol ventral  
SolVL Sol ventrolat  
sp5 sp trigeminal tr  
Sp5I spinal 5 interpolar  
ts tectospinal tract  
vert vertebral artery  
vsc vent spinocer tr

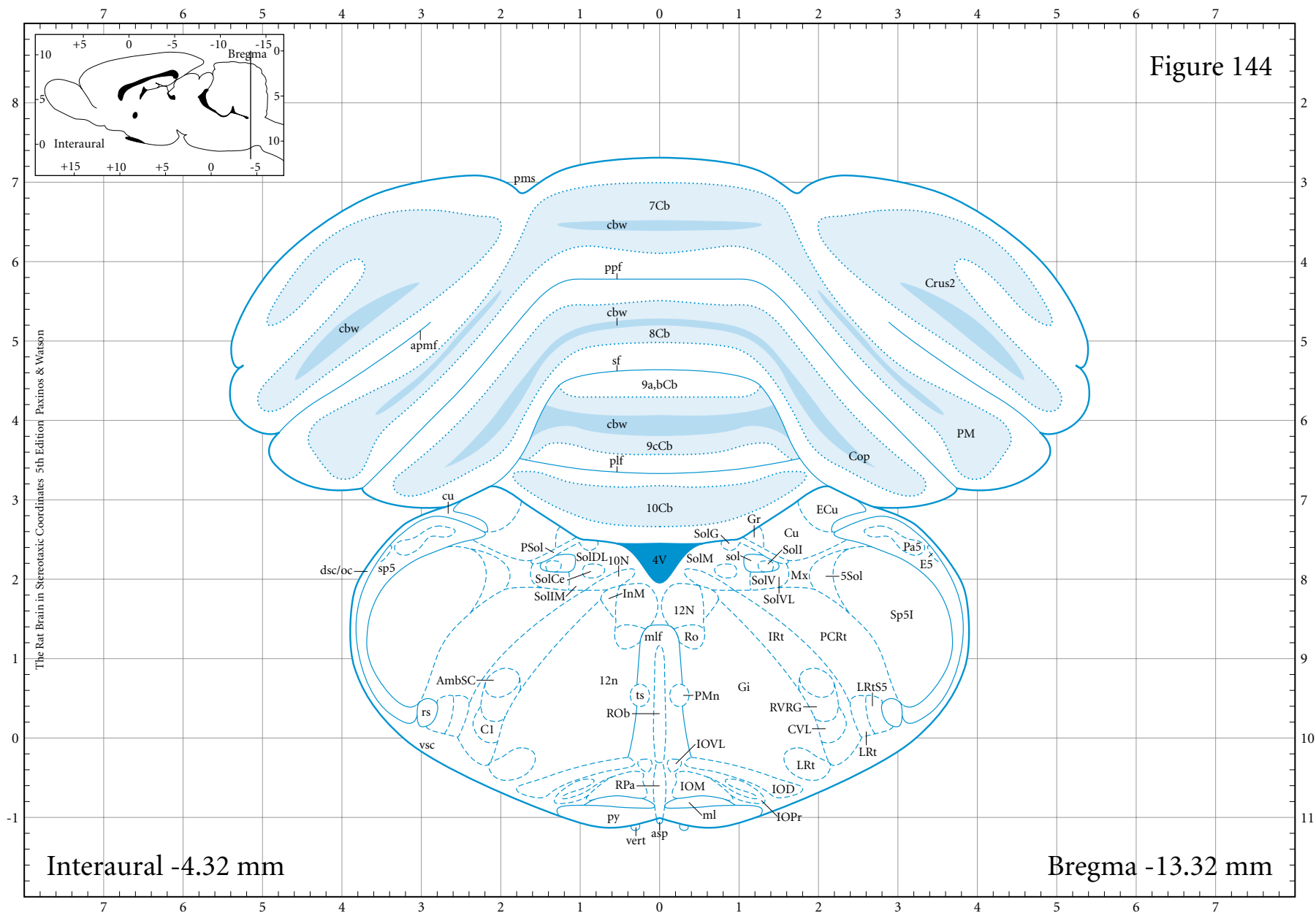
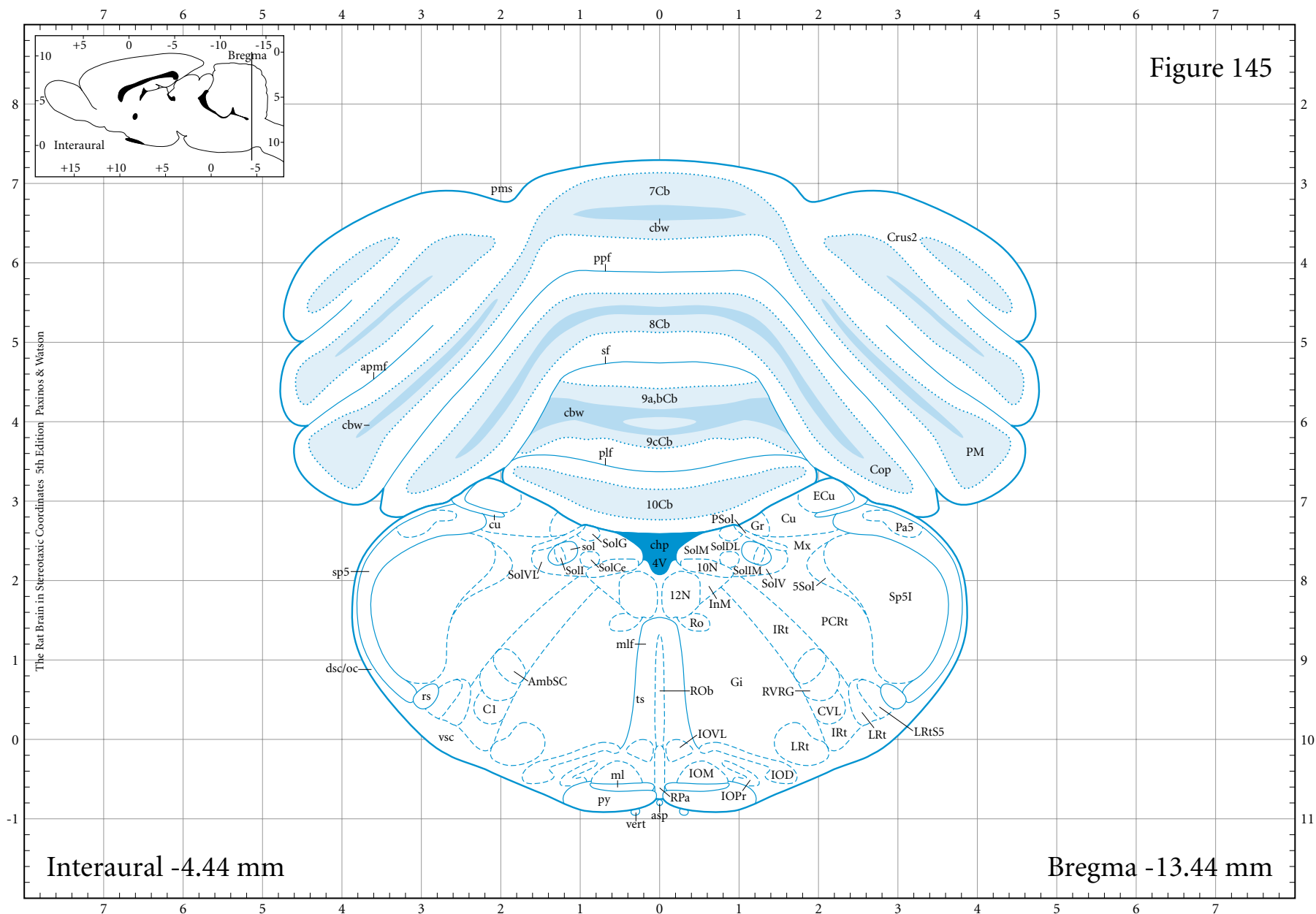
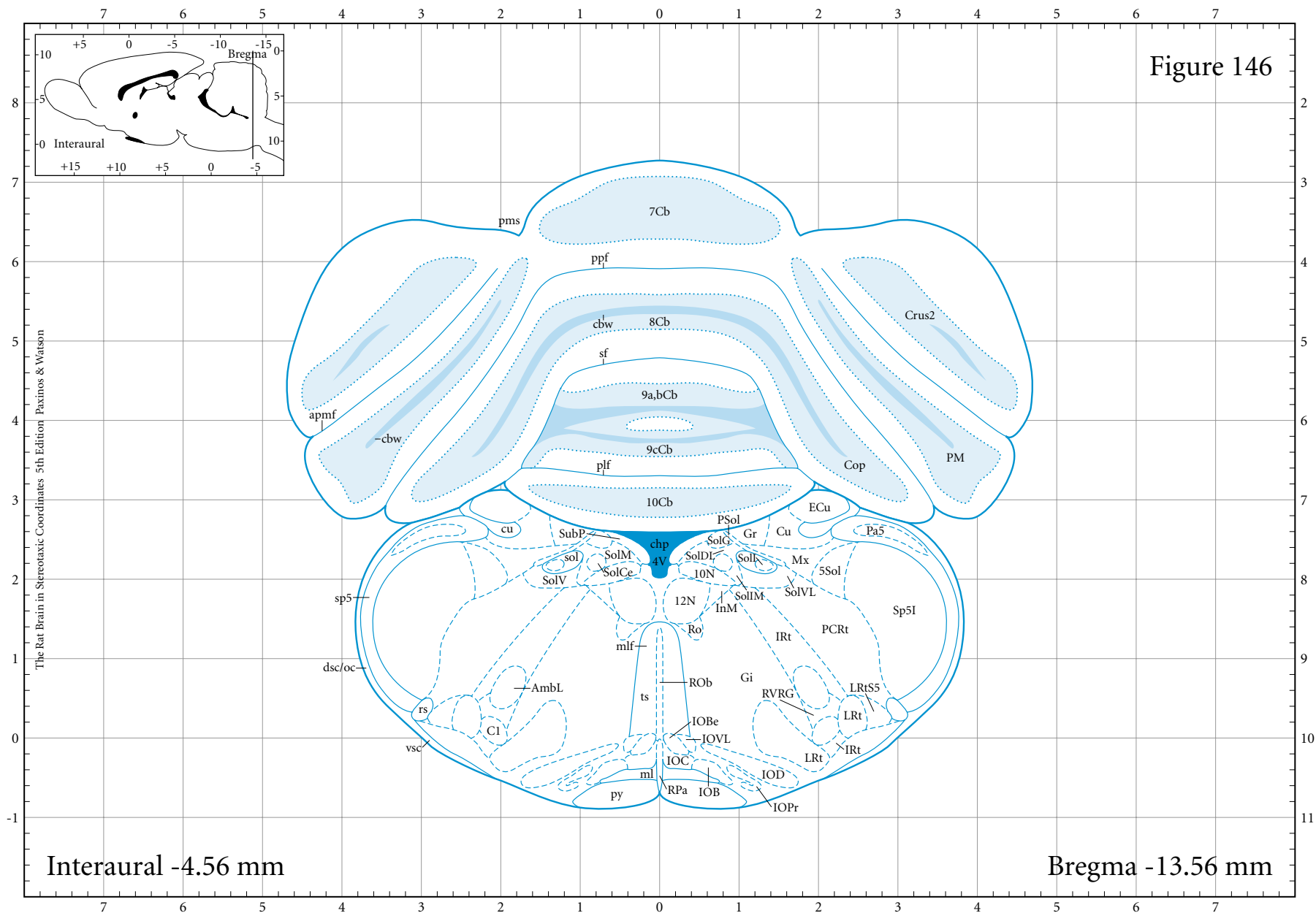


Figure 145



4V 4th ventricle	12N hypoglossal nu	Crus2 crus 2 ansiform	InM intmed of medulla	ml medial lemniscus	ppf prepyramidal fiss	sol solitary tract	SolVL Sol ventrolat
5Sol trig sol trans zn	AmbSC amb subcomp	Cu cuneate nu	IOD IO dorsal nu	mlf med long fasc	PSol parasolitary nu	SolCe Sol central	sp5 sp trigeminal tr
7Cb 7th Cb lobule	apmf ansoparamed fiss	cu cuneate fasciculus	IOM IO medial nu	py pyramidal tract	py pyramidal tract	SolDL Sol dorsolat	Sp5I spinal 5 interpolar
8Cb 8th Cb lobule	asp ant spinal artery	CVL caudoventrolat rt	IOPr IO principal nu	Pa5 paratrigeminal nu	Ro nu of Roller	SolG Sol gelatinous	ts tectospinal tract
9a,bCb 9th Cb lobule, a&b	C1 C1 adren cells	dsc/oc dors sp cer/ol cer	IOVL IO ventrolat	PCRt parvicell ret nu	ROb raphe obscurus nu	SolI Sol interstitial	vert vertebral artery
9cCb 9th Cb lobule, c	cbw cereb white mat	ECu ext cuneate nu	IRt intermed ret nu	plf posterolat fissure	RPa raphe pallidus nu	SolIM Sol intermediate	vsc vent spinocer tr
10Cb 10th Cb lobule	chp choroid plexus	Gi gigantocell ret nu	LRt lat reticular nu	PM paramedian lobule	RVRG rostral ventral rsp	SolM Sol medial	
10N dorsal mo nu 10	Cop copula of pyramis	Gr gracile nu	LRtS5 lat retic sub5	pms paramedian sulcus	sf 2ary fissure	SolV Sol ventral	

SolVL Sol ventrolat  
sp5 sp trigeminal tr  
Sp5I spinal 5 interpolar  
SubP subpostrema area  
ts tectospinal tract  
vsc vent spinocer tr





5Sol trig sol trans zn  
7Cb 7th Cb lobule  
8Cb 8th Cb lobule  
9Cb 9th Cb lobule  
10Cb 10th Cb lobule  
12GH 12 geniohyoid  
12N hypoglossal nu  
a artery

AmbL ambig nu loose  
AP area postrema  
apmf ansoparamed fiss  
C1/A1 C1 norad/A1 adr  
cbw cereb white mat  
CC central canal  
Cop copula of pyramis  
Crus2 crus 2 ansiform

Cu cuneate nu  
cu cuneate fasciculus  
CuR cun rotundus  
dsc/oc dors sp cer/ol cer  
ECu ext cuneate nu  
Gi gigantocell ret nu  
Gr gracile nu  
IOA IO med subnu A

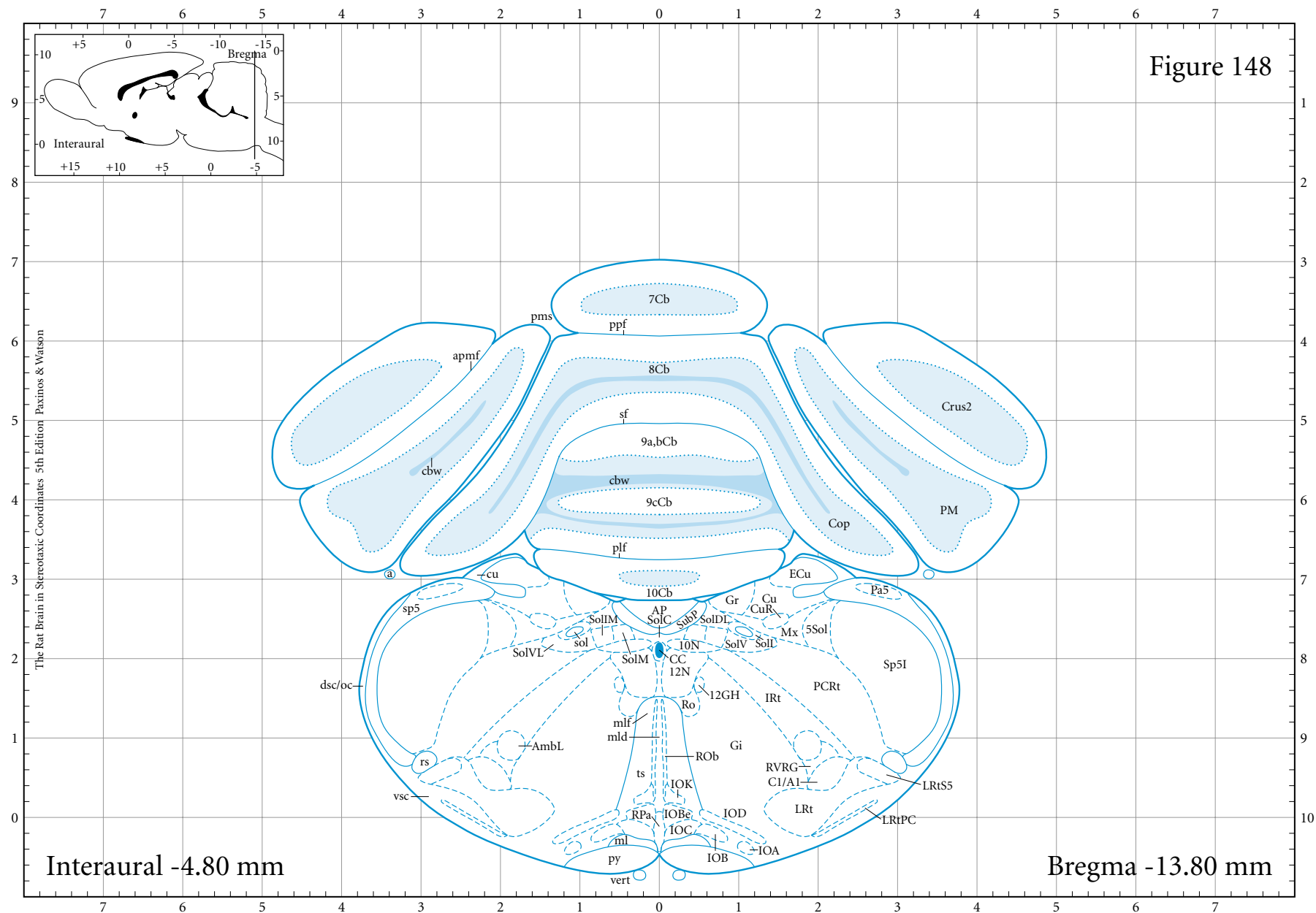
IOB IO med subnu B  
IOBe IO beta subnu  
IOC IO med subnu C  
IOD IO dorsal nu  
IOK IO med cap Kooy  
IRt intermed ret nu  
LRt lat reticular nu  
LRtPC lat retic parvicell

LRtS5 lat retic sub5  
mld med lem decuss  
mlf med long fasc  
Mx matrix region  
Pa5 paratrigeminal nu  
PCRt parvicell ret nu  
plf posterolat fissure  
PM paramedian lobule

pms paramedian sulcus  
ppf prepyramidal fiss  
py pyramidal tract  
Ro nu of Roller  
ROb raphe obscurus nu  
RPa raphe pallidus nu  
rs rubrospinal tract  
RVRG rostral ventral rsp

sf 2ary fissure  
sol solitary tract  
SolC Sol commissural  
SolDL Sol dorsolat  
SolI Sol interstitial  
SolIM Sol intermediate  
SolM Sol medial  
SolV Sol ventral

SolVL Sol ventrolat  
sp5 sp trigeminal tr  
Sp5I spinal 5 interpolar  
SubP subpostrema area  
ts tectospinal tract  
vert vertebral artery  
vsc vent spinocer tr







7Cb 7th Cb lobule  
8Cb 8th Cb lobule  
9a,bCb 9th Cb lobule, a&b  
9cCb 9th Cb lobule, c  
10N dorsal mo nu 10  
10n vagus n  
12GH 12 geniohyoid  
12N hypoglossal nu

12n root of 12n  
Amb ambiguus nu  
AP area postrema  
apmf ansoparamed fiss  
C1/A1 C1 norad/A1 adr  
cbw cereb white mat  
CC central canal  
CeCv central cervic nu

Cop copula of pyramis  
Crus2 crus 2 ansiform  
Cu cuneate nu  
cu cuneate fasciculus  
CuR cun rotundus  
CVL caudoventrolat rt  
dsc dorsal sp cereb tr  
ECu ext cuneate nu

Gr gracile nu  
IOA IO med subnu A  
IOB IO med subnu B  
IOBe IO beta subnu  
IOC IO med subnu C  
IOK IO med cap Kooy  
IRt intermed ret nu  
LRt lat reticular nu

LRtPC lat retic parvicell  
LRtS5 lat retic sub5  
MdD medullary ret dors  
MdV medull ret vent  
ml medial lemniscus  
mlf med long fasc  
Mx matrix region  
Pa5 paratrigeminal nu

PM paramedian lobule  
ppf prepyramidal fiss  
py pyramidal tract  
Ro nu of Roller  
ROb raphe obscurus nu  
RPa raphe pallidus nu  
rs rubrospinal tract  
RVRG rostral ventral rsp

sf 2ary fissure  
sol solitary tract  
SolC Sol commissural  
SolDL Sol dorsolat  
SolI Sol interstitial  
SolIM Sol intermediate  
SolM Sol medial  
SolV Sol ventral

SolVL Sol ventrolat  
sp5 sp trigeminal tr  
Sp5C spinal 5 caudal  
Sp5I spinal 5 interpolar  
SubP subpostrema area  
ts tectospinal tract  
vert vertebral artery  
vsc vent spinocer tr

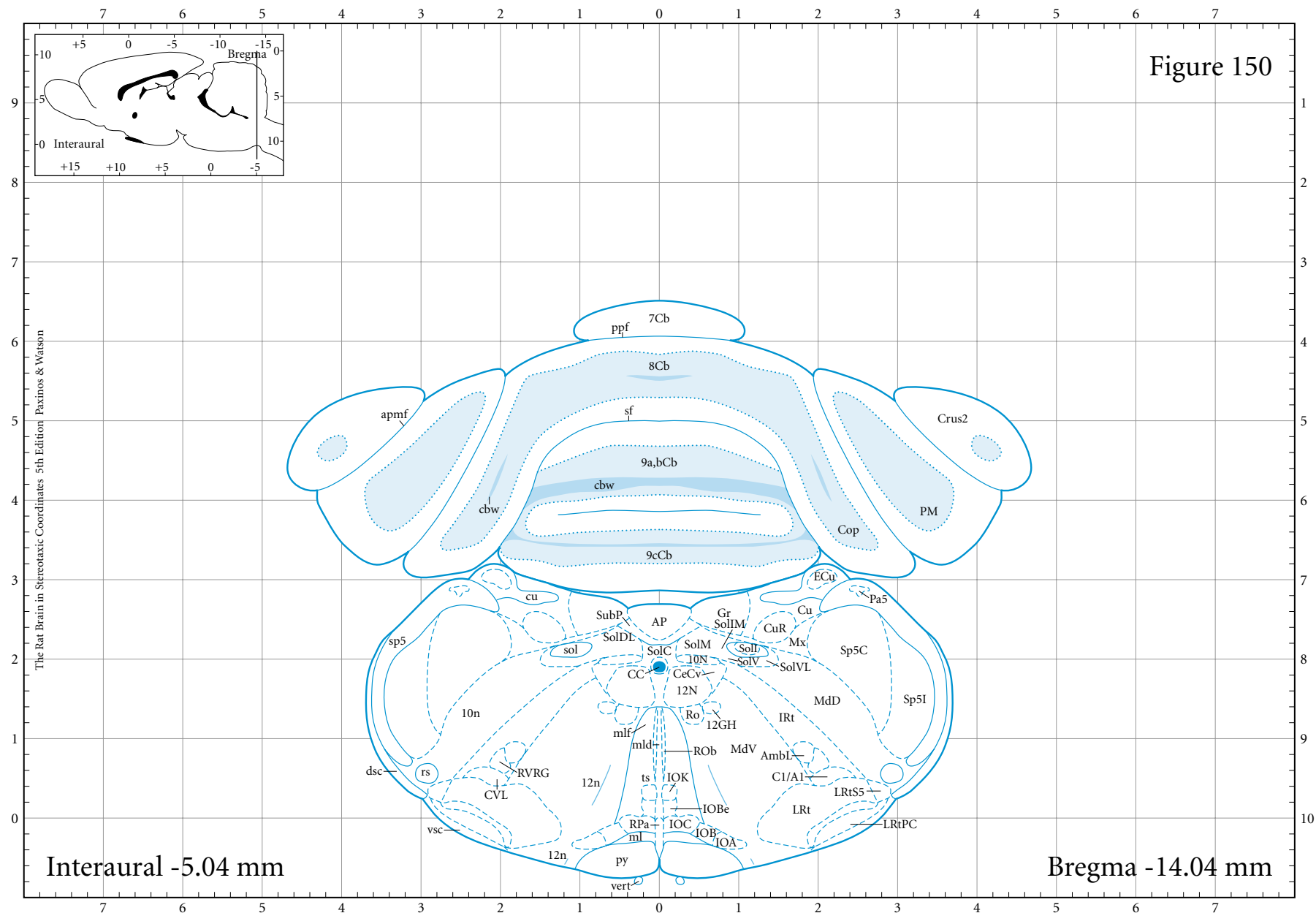
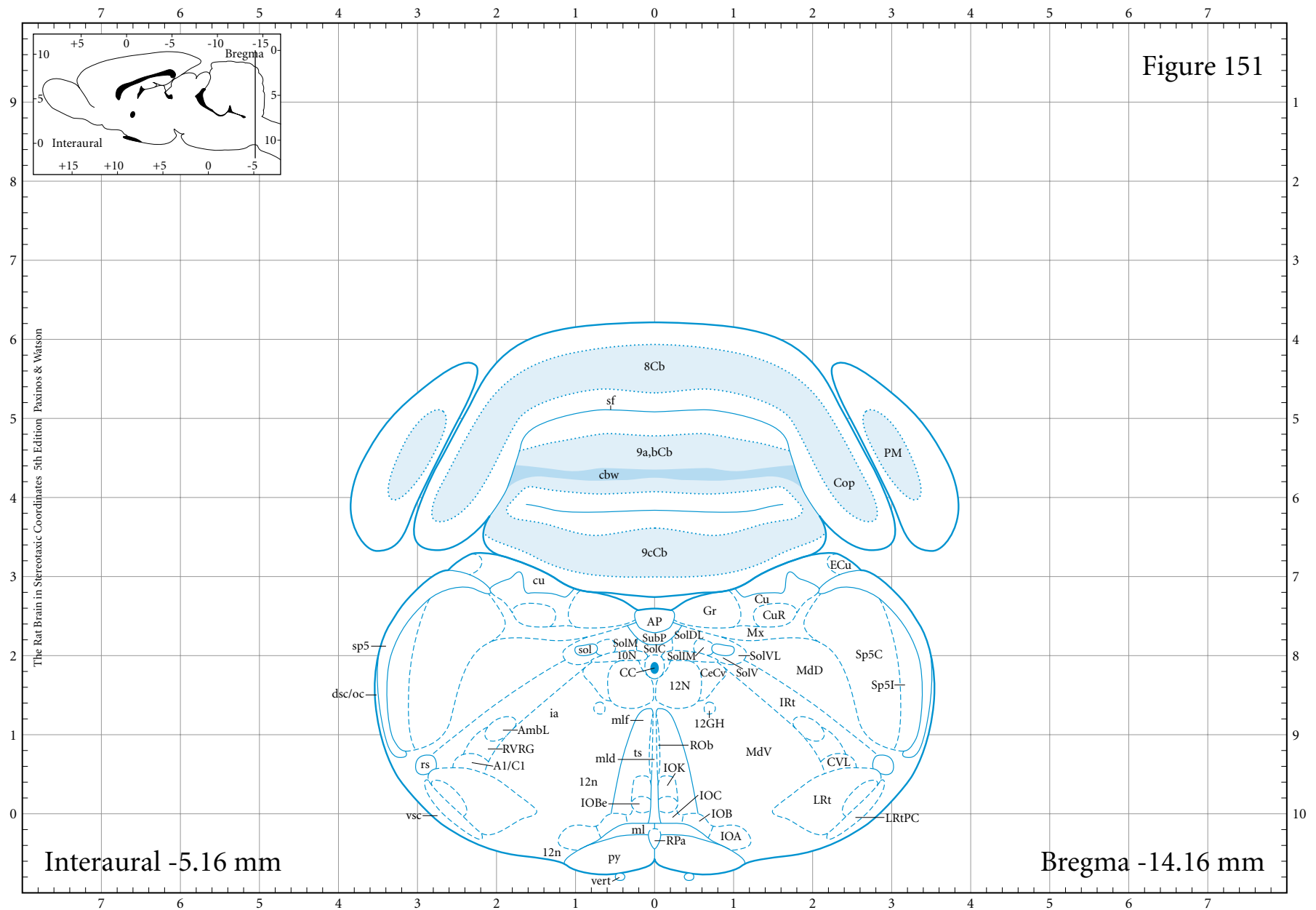


Figure 151



8Cb 8th Cb lobule  
9a,bCb 9th Cb lobule, a&b  
9cCb 9th Cb lobule, c  
10N dorsal mo nu 10  
12GH 12 geniohyoid  
12N hypoglossal nu  
12n root of 12n

A1/C1 A1noradr/C1adren  
AmbL ambig nu loose  
AP area postrema  
cbw cereb white mat  
CC central canal  
CeCv central cervic nu  
Cop copula of pyramis

Cu cuneate nu  
cu cuneate fasciculus  
CuR cun rotundus  
CVL caudoventrolat rt  
dsc/oc dors sp cer/ol cer  
ECu ext cuneate nu  
Gr gracile nu

ia int arcuate fibers  
IOA IO med subnu A  
IOB IO med subnu B  
IOBe IO beta subnu  
IOC IO med subnu C  
IOK IO med cap Kooy  
IRt intermed ret nu

LRt lat reticular nu  
LRtPC lat retic parvicell  
MdD medullary ret dors  
MdV medull ret vent  
ml medial lemniscus  
mld med lem decussn  
mlf med long fasc

Mx matrix region  
PM paramedian lobule  
py pyramidal tract  
ROB raphe obscurus nu  
RPa raphe pallidus nu  
rs rubrospinal tract  
RVRG rostral ventral rsp

sf 2ary fissure  
sol solitary tract  
SolC Sol commissural  
SolDL Sol dorsolat  
SolIM Sol intermediate  
SolM Sol medial  
SolV Sol ventral

SolVL Sol ventrolat  
sp5 sp trigeminal tr  
Sp5C spinal 5 caudal  
Sp5I spinal 5 interpolar  
SubP subpostrema area  
ts tectospinal tract  
vert vertebral artery  
vsc vent spinocer tr

8Cb 8th Cb lobule  
9a,bCb 9th Cb lobule, a&b  
9cCb 9th Cb lobule, c  
10N dorsal mo nu 10  
12GH 12 geniohyoid  
12N hypoglossal nu  
12n root of 12n  
A1 A1 noradrenergic cells  
AP area postrema

cbw cereb white mat  
CC central canal  
CeCv central cervic nu  
Cop copula of pyramis  
Ct conterminal nu  
Cu cuneate nu  
cu cuneate fasciculus  
CuR cun rotundus  
dsc dorsal sp cereb tr

Gr gracile nu  
ia int arcuate fibers  
IOA IO med subnu A  
IOB IO med subnu B  
IOBe IO beta subnu  
IOC IO med subnu C  
IRt intermed ret nu  
LRt lat reticular nu  
LRtPC lat retic parvicell

MdD medullary ret dors  
MdV medull ret vent  
ml medial lemniscus  
mld med lem decussn  
mlf med long fasc  
Mx matrix region  
PM paramedian lobule  
py pyramidal tract  
RAmb retroambiguus nu

ROb raphe obscurus nu  
RPa raphe pallidus nu  
rs rubrospinal tract  
sf 2ary fissure  
sol solitary tract  
SolC Sol commissural  
SolDL Sol dorsolat  
SolM Sol medial  
SolV Sol ventral

SolVL Sol ventrolat  
sp5 sp trigeminal tr  
Sp5C spinal 5 caudal  
SubP subpostrema area  
ts tectospinal tract  
vert vertebral artery  
vsc vent spinocer tr

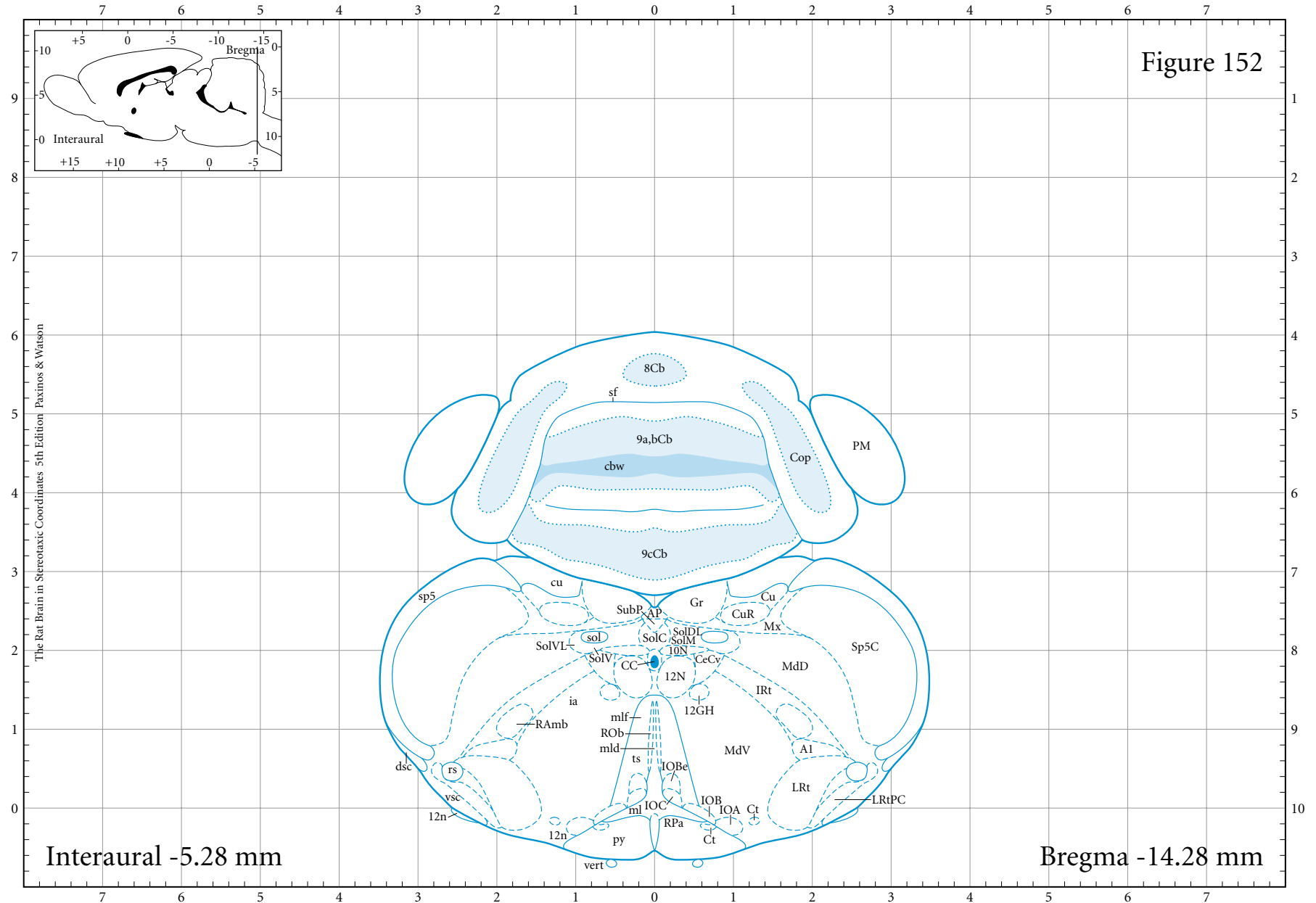
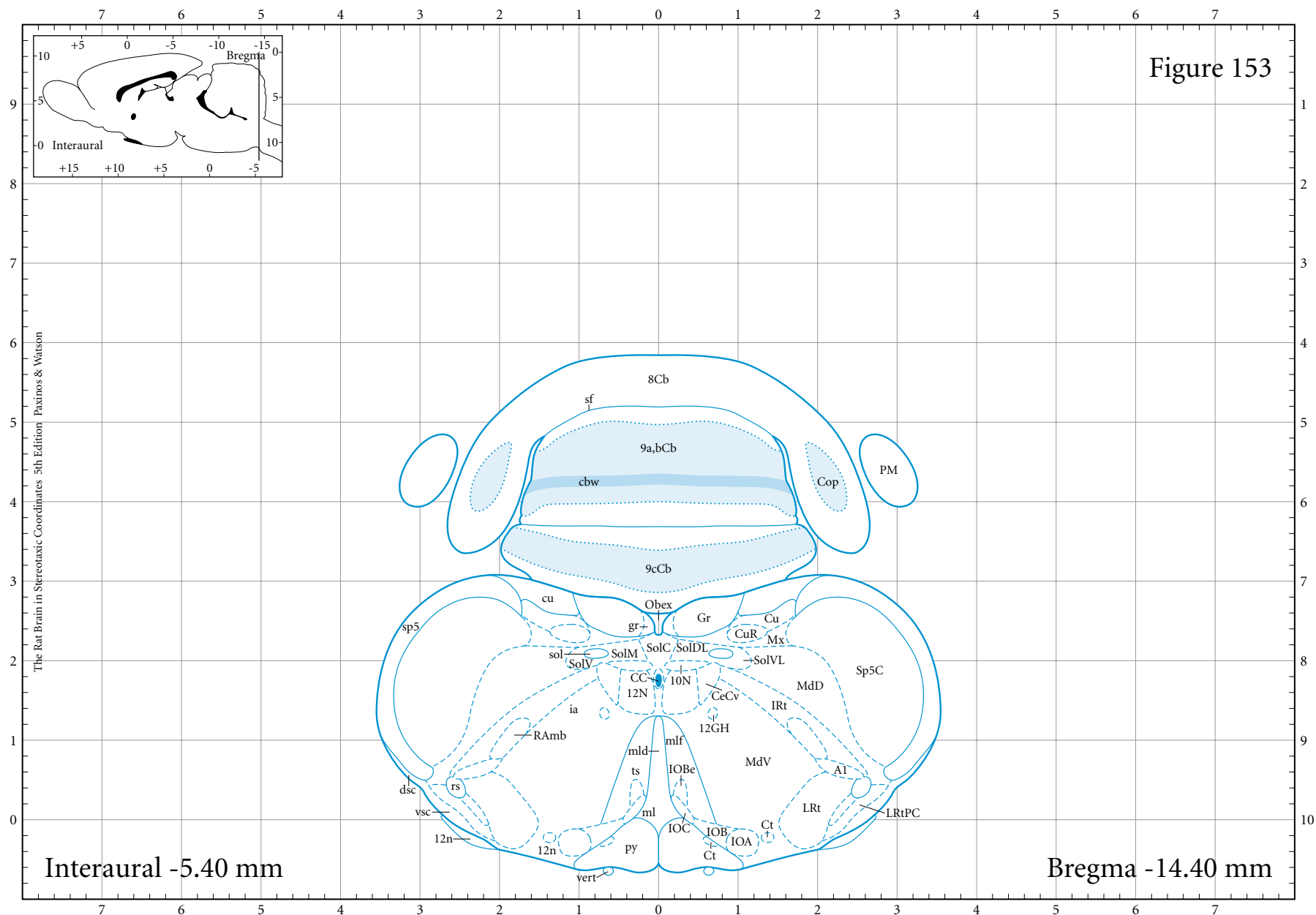


Figure 153



8Cb 8th Cb lobule  
9a,bCb 9th Cb lobule, a&b  
9cCb 9th Cb lobule, c  
10N dorsal mo nu 10  
12GH 12 geniohyoid  
12N hypoglossal nu  
12n root of 12n  
A1 A1 noradrenergic cells  
cbw cereb white mat

CC central canal  
CeCv central cervic nu  
Cop copula of pyramis  
Ct conterminal nu  
Cu cuneate nu  
cu cuneate fasciculus  
CuR cun rotundus  
dsc dorsal sp cereb tr  
Gr gracile nu

gr gracile fasciculus  
ia int arcuate fibers  
IOA IO med subnu A  
IOB IO med subnu B  
IOBe IO beta subnu  
IOC IO med subnu C  
IRt intermed ret nu  
LRt lat reticular nu  
LRtPC lat retic parvicell

MdD medullary ret dors  
MdV medull ret vent  
ml medial lemniscus  
mld med lem decussn  
mlf med long fasc  
IOC IO med subnu C  
Obex obex  
PM paramedian lobule  
py pyramidal tract

RAmb retroambiguus nu  
rs rubrospinal tract  
sf 2ary fissure  
sol solitary tract  
SolC Sol commissural  
SolDL Sol dorsolat  
SolM Sol medial  
SolV Sol ventral  
SolVL Sol ventrolat

sp5 sp trigeminal tr  
Sp5C spinal 5 caudal  
ts tectospinal tract  
vert vertebral artery  
vsc vent spinocer tr

sp5 sp trigeminal tr  
Sp5C spinal 5 caudal  
ts tectospinal tract  
vert vertebral artery  
vsc vent spinocer tr

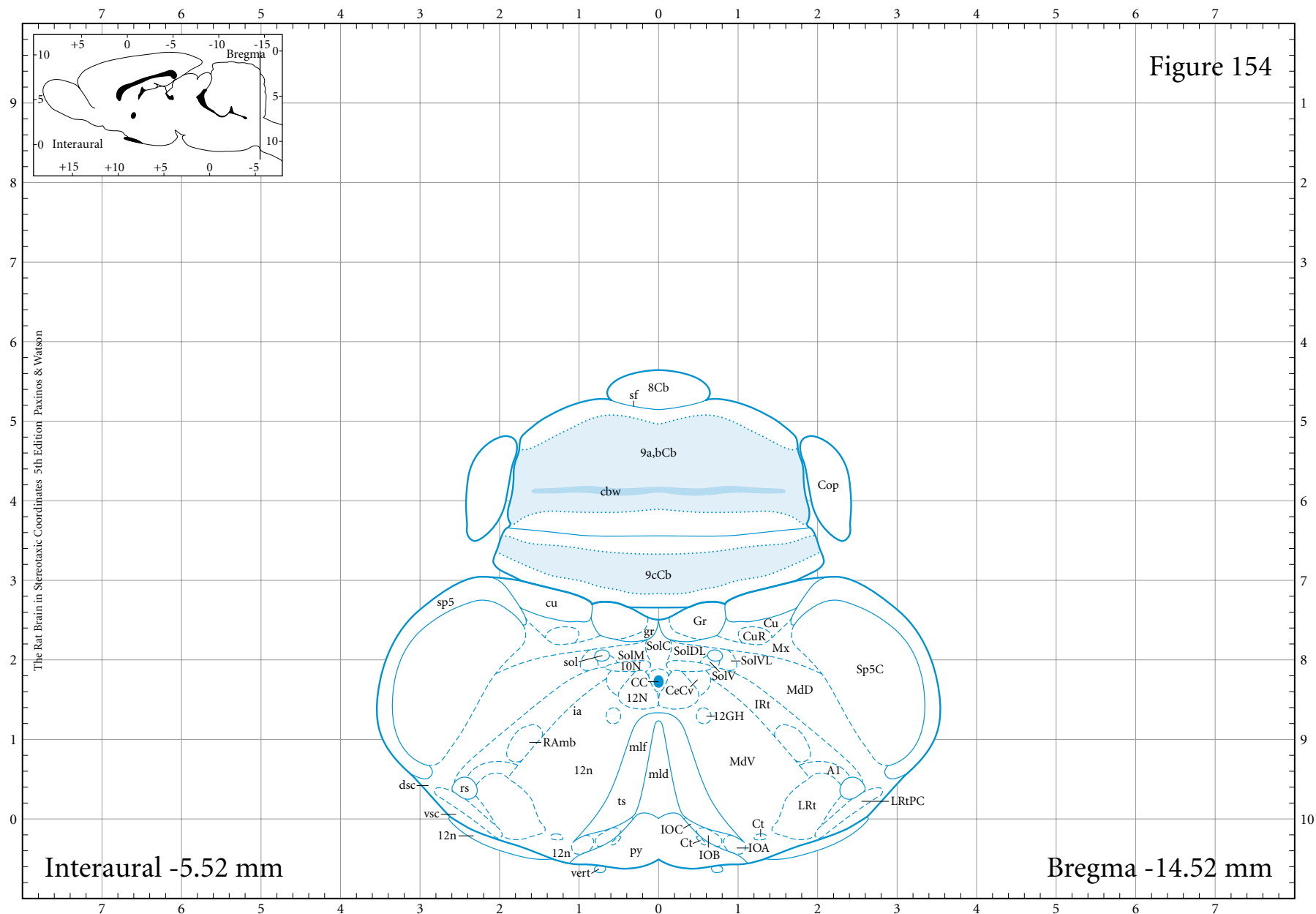
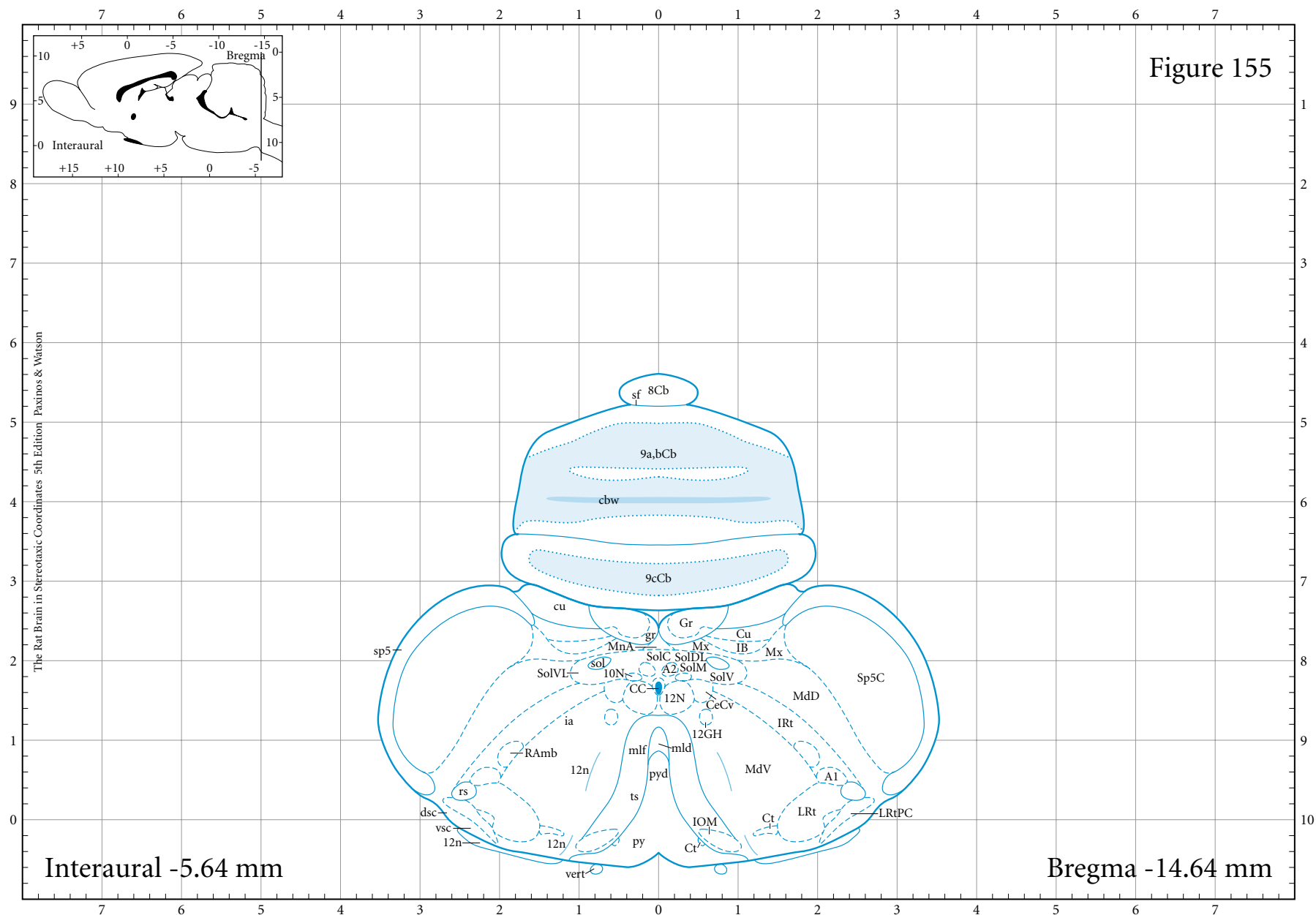


Figure 155



8Cb 8th Cb lobule  
9a,bCb 9th Cb lobule, a&b  
9aCb 9th Cb lobule, a  
10N dorsal mo nu 10  
12GH 12 geniohyoid  
12N hypoglossal nu  
12n root of 12n  
A1 A1 noradrenergic cells

A2 A2 noradrenergic cells  
cbw cerebellar white matter  
CC central canal  
CeCv central cervic nu  
Ct conterminal nu  
Cu cuneate nu  
cu cuneate fasciculus  
dsc dorsal sp cerebellar tr

Gr gracile nu  
gr gracile fasciculus  
IB internal basal nu  
mlf med long fasc  
IOM IO medial nu  
IRt intermed ret nu  
LRt lat reticular nu  
LRtPC lat retic parvicell  
MdD medullary ret dors

MdV medull ret vent  
mld med lem decussn  
mlf med long fasc  
MnA median acc nu  
Mx matrix region  
py pyramidal tract  
pyd pyramidal decussn  
RAmb retroambiguus nu

rs rubrospinal tract  
sf 2ary fissure  
sol solitary tract  
SolC Sol commissural  
SolDL Sol dorsolat  
SolM Sol medial  
SolV Sol ventral  
SolVL Sol ventrolat

sp5 sp trigeminal tr  
Sp5C spinal 5 caudal  
ts tectospinal tract  
vert vertebral artery  
vsc vent spinocereb tr

9a,bCb 9th Cb lobule, a&b  
9cCb 9th Cb lobule, c  
10N dorsal mo nu 10  
12GH 12 geniohyoid  
12N hypoglossal nu  
A1 A1 noradr cells  
A2 A2 noradr cells

cbw cereb white mat  
CC central canal  
CeCv central cervic nu  
Cu cuneate nu  
cu cuneate fasciculus  
dsc dorsal sp cereb tr  
Gr gracile nu

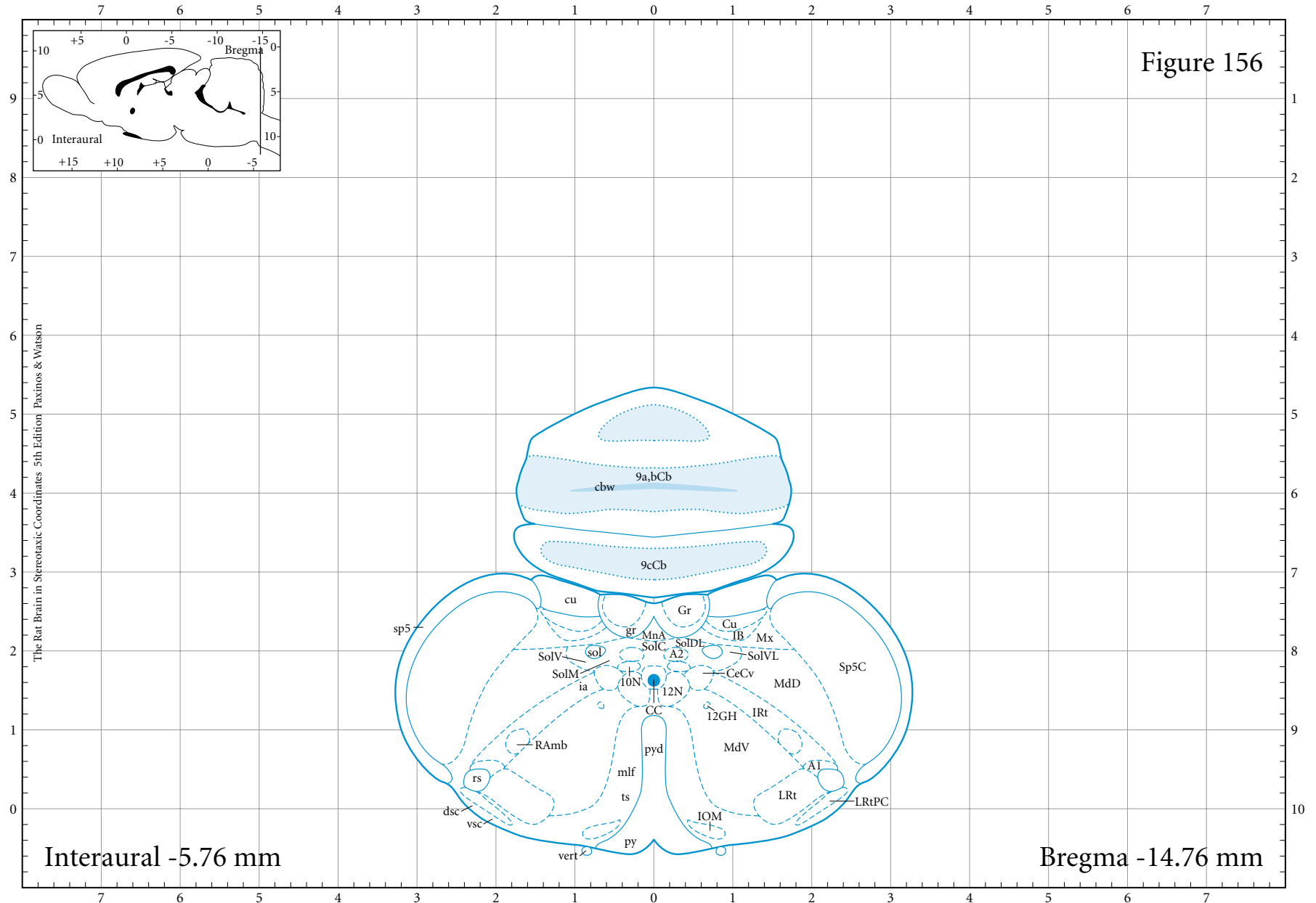
gr gracile fasciculus  
ia int arcuate fibers  
IB internal basal nu  
IOM IO medial nu  
IRt intermed ret nu  
LRt lat reticular nu  
LRtPC lat retic parvicell

MdD medullary ret dors  
MdV medull ret vent  
mlf med long fasc  
MnA median acc nu  
Mx matrix region  
py pyramidal tract  
pyd pyramidal decussn

Ramb retroambiguus nu  
rs rubrospinal tract  
sol solitary tract  
SolC Sol commissural  
SolDL Sol dorsolat  
SolM Sol medial  
SolV Sol ventral

SolVL Sol ventrolat  
sp5 sp trigeminal tr  
Sp5C spinal 5 caudal  
ts tectospinal tract  
vert vertebral artery  
vsc vent spinocer tr

Figure 156







9a,bCb 9th Cb lobule, a&b  
 9cCb 9th Cb lobule, c  
 11N access nerve nu  
 A1 A1 noradr cells  
 A2 A2 noradr cells  
 CC central canal  
 CeCv central cervic nu  
 Cu cuneate nu

cu cuneate fasciculus  
 dsc dorsal sp cereb tr  
 Ge5 gelat caudal sp 5  
 Gr gracile nu  
 gr gracile fasciculus  
 IB internal basal nu  
 IRt intermed ret nu  
 MdD medullary ret dors

MdV medull ret vent  
 mlf med long fasc  
 MnA median acc nu  
 Mx matrix region  
 pyd pyramidal decussn  
 RAmb retroambiguus nu  
 rs rubrospinal tract  
 SolC Sol commissural

SolM Sol medial  
 sp5 sp trigeminal tr  
 Sp5C spinal 5 caudal  
 ts tectospinal tract  
 vert vertebral artery  
 vsc vent spinocer tr

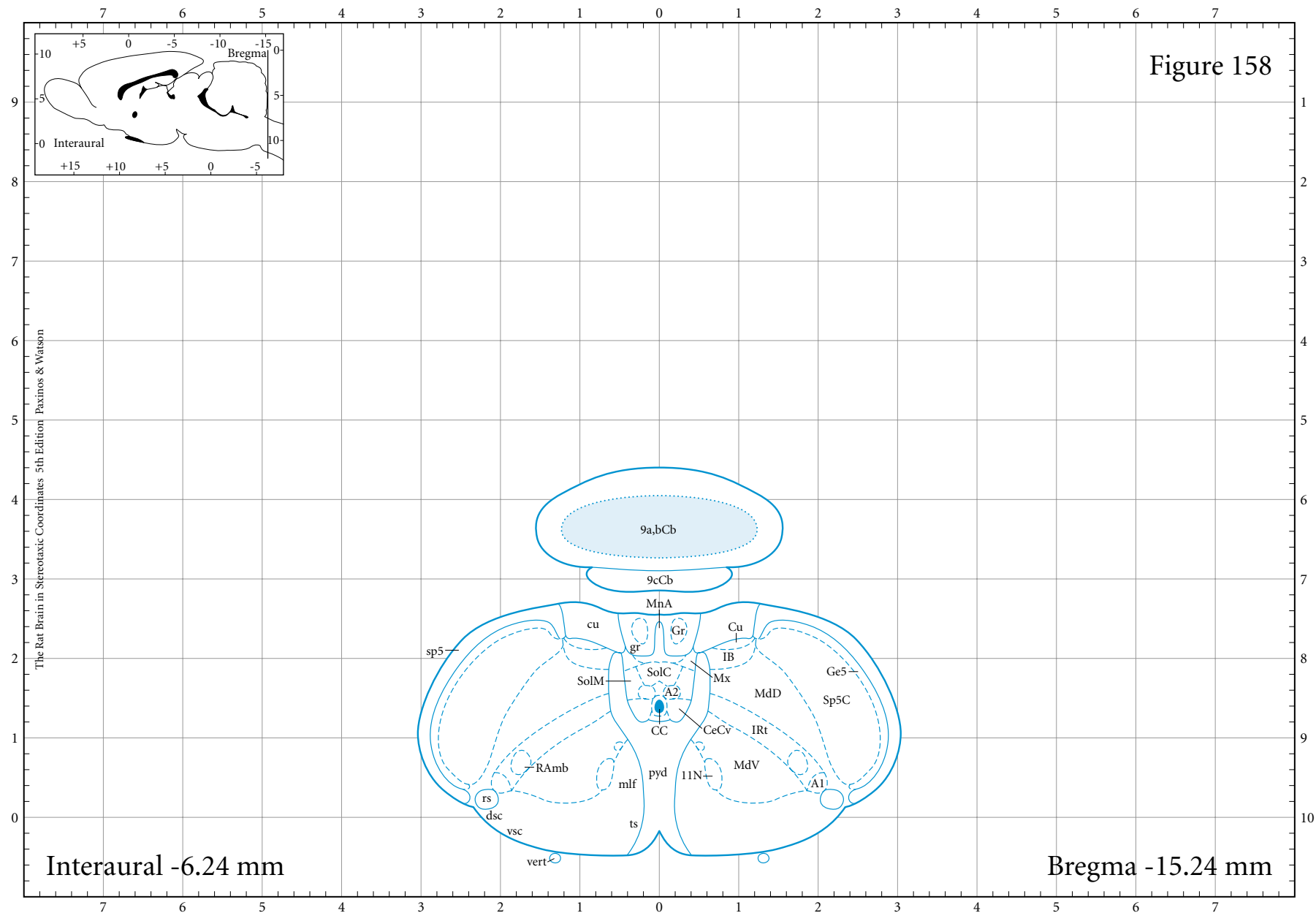
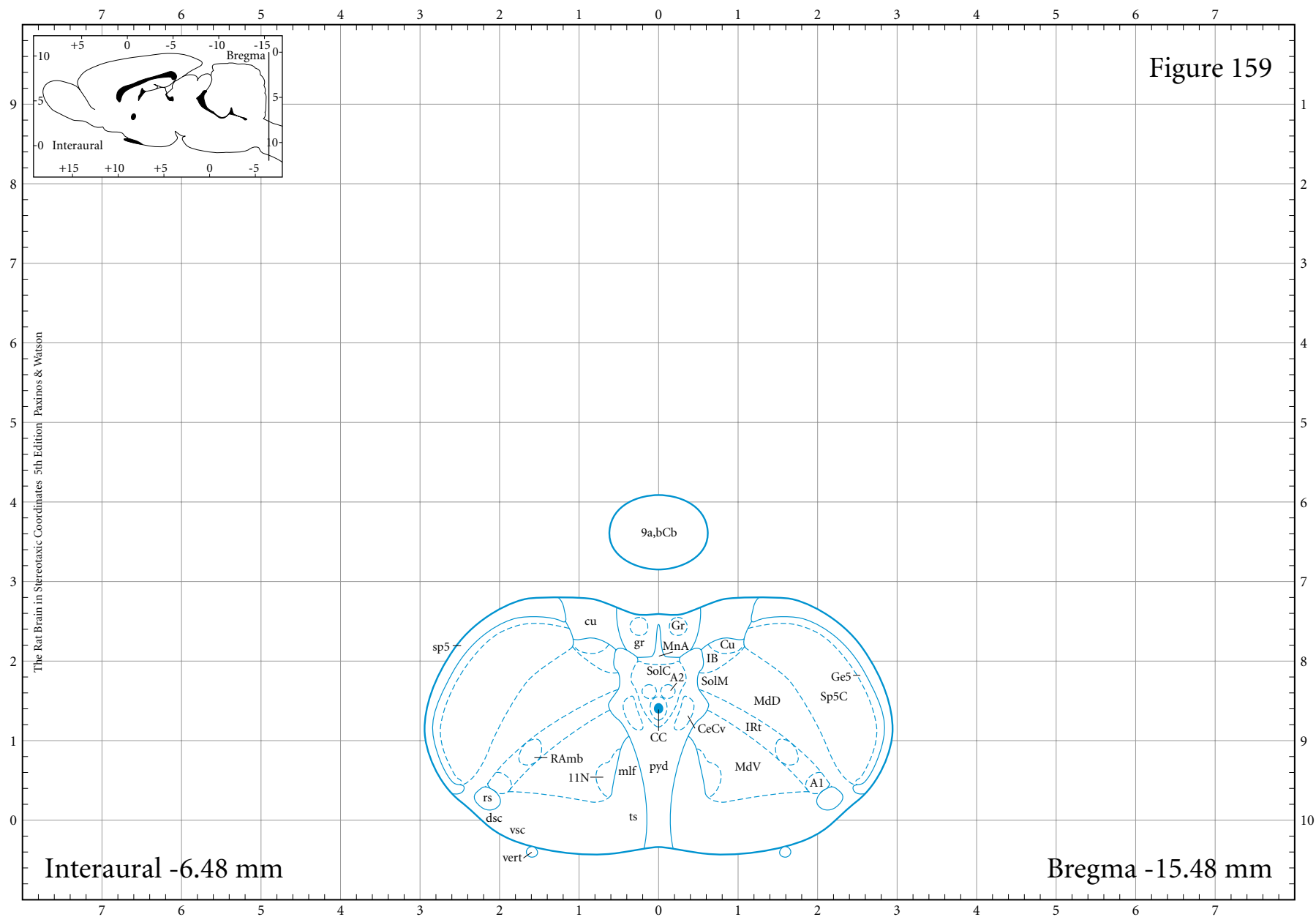


Figure 159



9a,bCb 9th Cb lobule, a&b  
11N access nerve nu  
A1 A1 noradr cells  
A2 A2 noradr cells  
CC central canal  
CeCv central cervic nu  
Cu cuneate nu

cu cuneate fasciculus  
dsc dorsal sp cereb tr  
Ge5 gelat caudal sp 5  
Gr gracile nu  
gr gracile fasciculus  
IB internal basal nu  
IRt intermed ret nu

MdD medullary ret dors  
MdV medull ret vent  
mlf med long fasc  
MnA median acc nu  
pyd pyramidal decuss  
Ramb retroambiguus nu  
rs rubrospinal tract

SolC Sol commissural  
SolM Sol medial  
sp5 sp trigeminal tr  
Sp5C spinal 5 caudal  
ts tectospinal tract  
vert vertebral artery  
vsc vent spinocer tr

11N access nerve nu	dsc dorsal sp cereb tr	MdV medull ret vent	sp5 sp trigeminal tr
A1 A1 noradr cells	Ge5 gelat caudal sp 5	mlf med long fasc	Sp5C spinal 5 caudal
A2 A2 noradr cells	Gr gracile nu	MnA median acc nu	ts tectospinal tract
CC central canal	gr gracile fasciculus	pyd pyramidal decussn	vert vertebral artery
CeCv central cervic nu	ia int arcuate fibers	RAmb retroambiguus nu	vsc vent spinocer tr
Cu cuneate nu	IB internal basal nu	rs rubrospinal tract	
cu cuneate fasciculus	IRt intermed ret nu	SolC Sol commissural	
dcs dors corticosp tr	MdD medullary ret dors	SolM Sol medial	

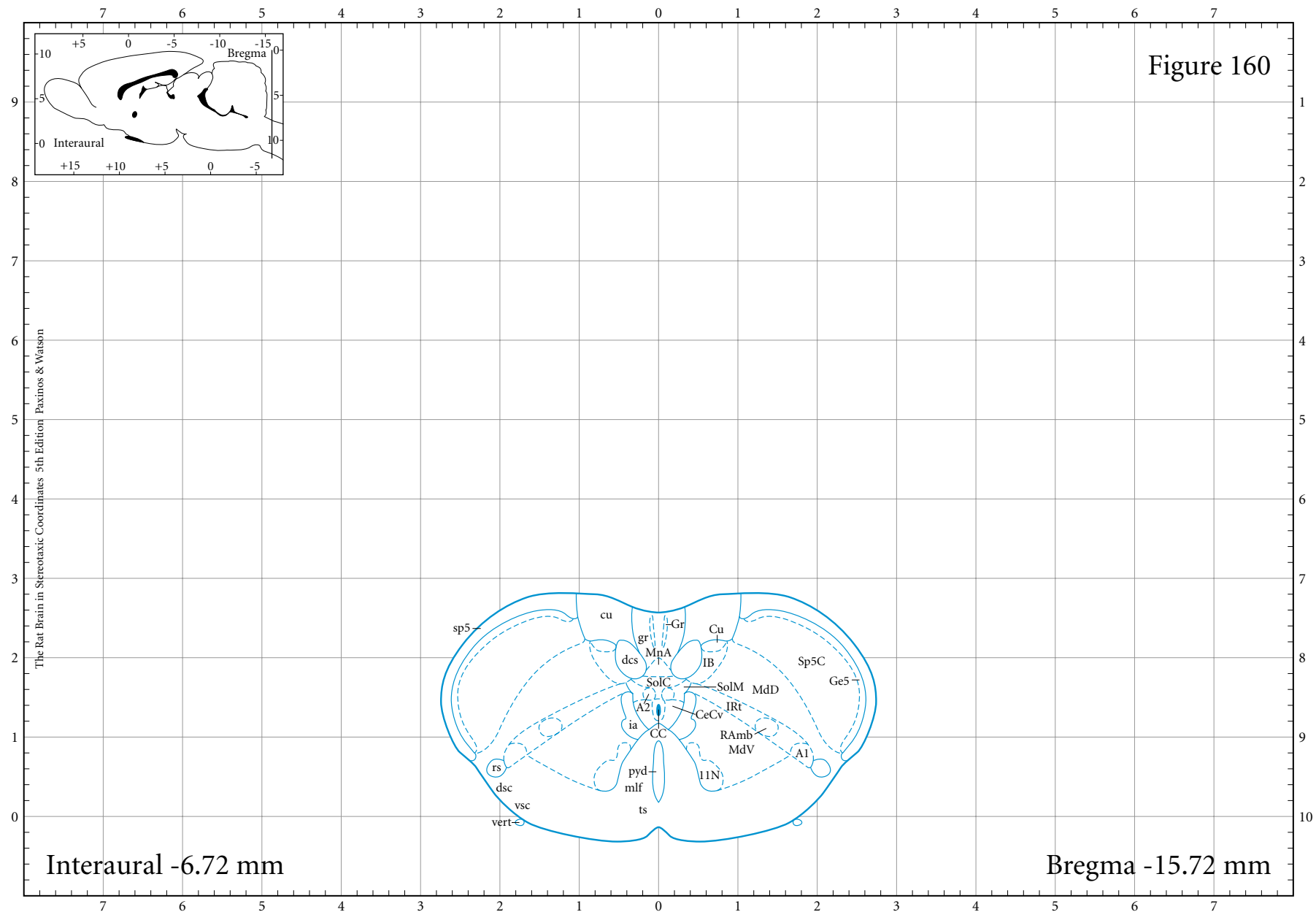
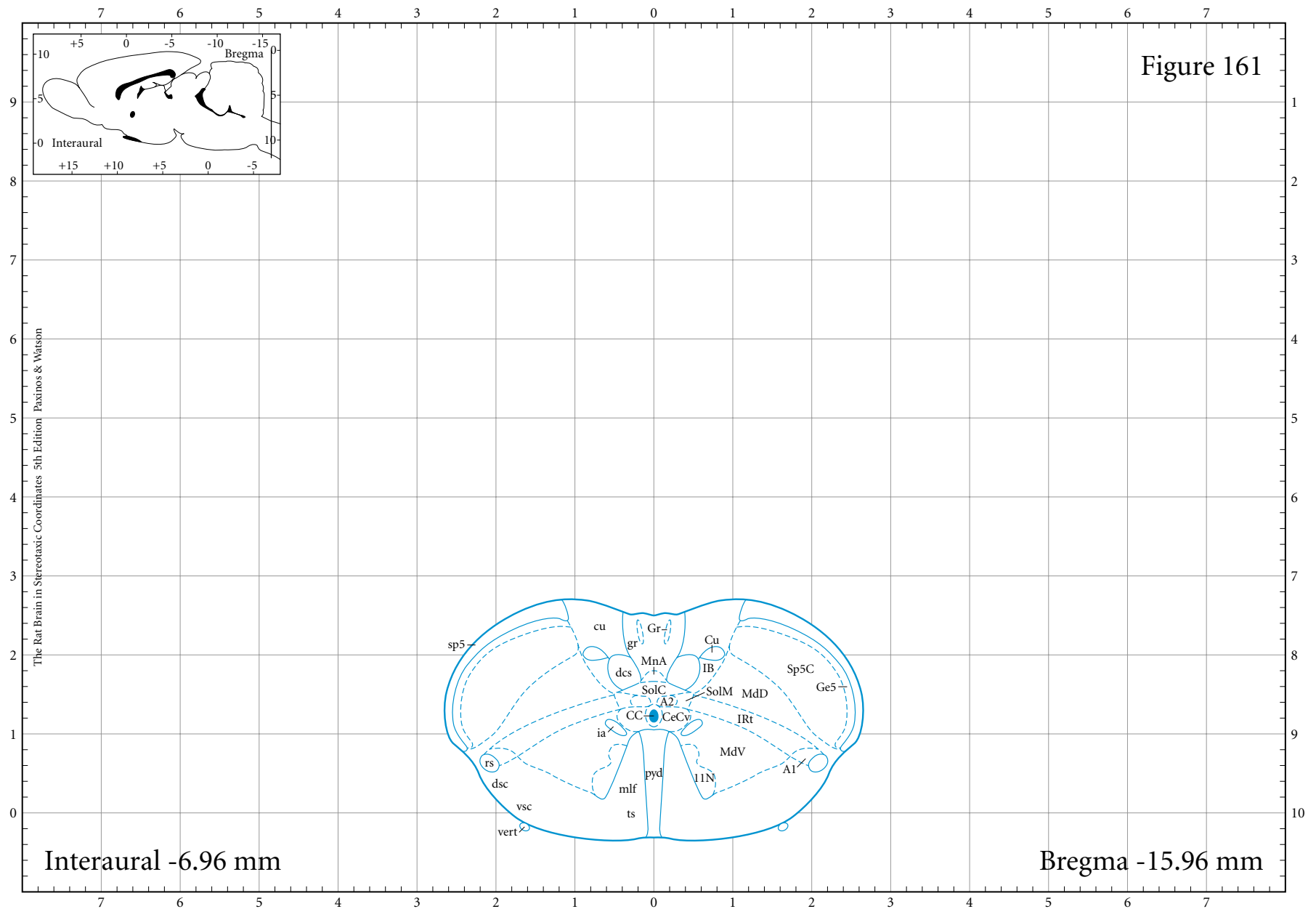


Figure 161



11N access nerve nu  
A1 A1 noradr cells  
A2 A2 noradr cells  
CC central canal  
CeCv central cervic nu  
Cu cuneate nu  
cu cuneate fasciculus

dcs dors corticosp tr  
dsc dorsal sp cereb tr  
Ge5 gelat caudal sp 5  
Gr gracile nu  
gr gracile fasciculus  
ia int arcuate fibers  
IB internal basal nu

IRt intermed ret nu  
MdD medullary ret dors  
MdV medull ret vent  
mlf med long fasc  
MnA median acc nu  
pyd pyramidal decussn  
rs rubrospinal tract

SolC Sol commissural  
SolM Sol medial  
sp5 sp trigeminal tr  
Sp5C spinal 5 caudal  
ts tectospinal tract  
vert vertebral artery  
vsc vent spinocer tr

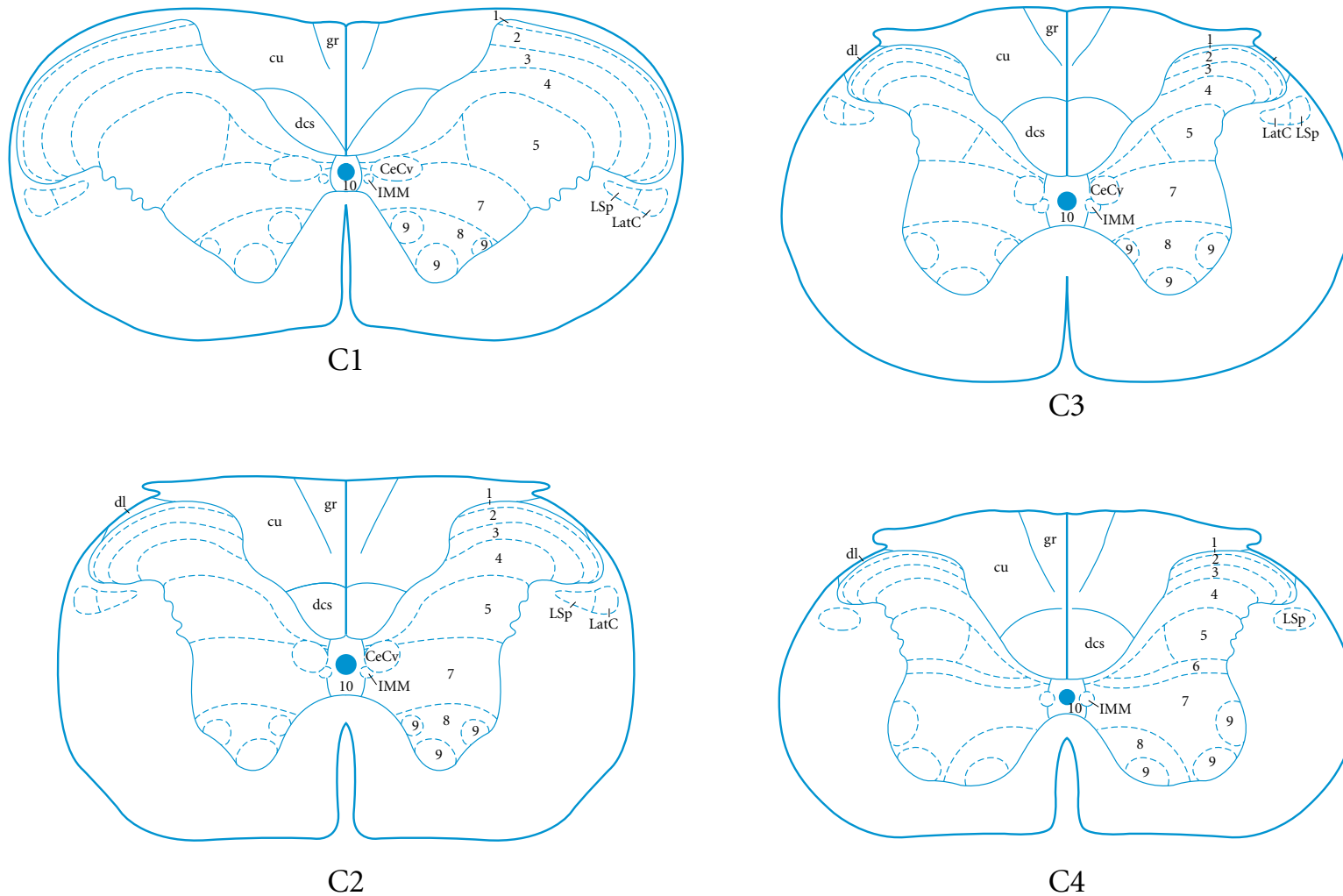
1-10 spinal cord layers  
 CeCv central cervical nucleus  
 cu cuneate fasciculus  
 dl dorsolateral fasciculus  
 gr gracile fasciculus

IML intermediolateral cell column  
 IMM intermediomedial cell column  
 LatC lateral cervical nucleus  
 LSp lateral spinal nucleus  
 dcs dorsal corticospinal tract

\*Fig 162a, 162b, 162c, 162d, 162e are reproduced from Molander and Grant (1995) with permission of the authors. Users of these figures should cite Molander, C. and Grant, G., 1995, Spinal cord cytoarchitecture.

In G. Paxinos(Ed), *The Nervous System*, Second Edition, Academic Press, San Diego.

Figure 162a\*



In G. Paxinos(Ed), *The Nervous System*,  
Second Edition, Academic Press,  
SanDiego.



1-10 spinal cord layers  
 CeCv central cervical nucleus  
 cu cuneate fasciculus  
 D dorsal nucleus (Clarke)  
 dl dorsolateral fasciculus  
 gr gracile fasciculus

IML intermediolateral cell column  
 IMM intermediodorsal cell column  
 LatC lateral cervical nucleus  
 LSp lateral spinal nucleus  
 dcs dorsal corticospinal tract

\*Fig 162a, 162b, 162c, 162d, 162e are reproduced from Molander and Grant (1995) with permission of the authors. Users of these figures should cite Molander, C. and Grant, G., 1995, Spinal cord cytoarchitecture.

In G. Paxinos(Ed), *The Nervous System*, Second Edition, Academic Press, SanDiego.

Figure 162c\*

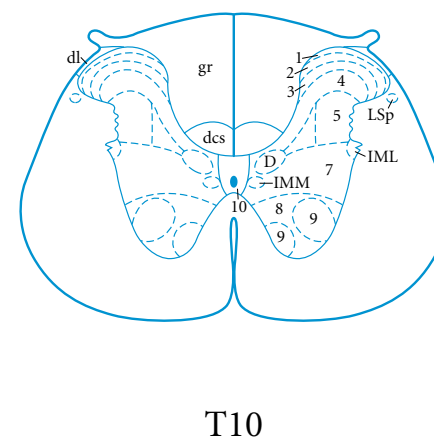
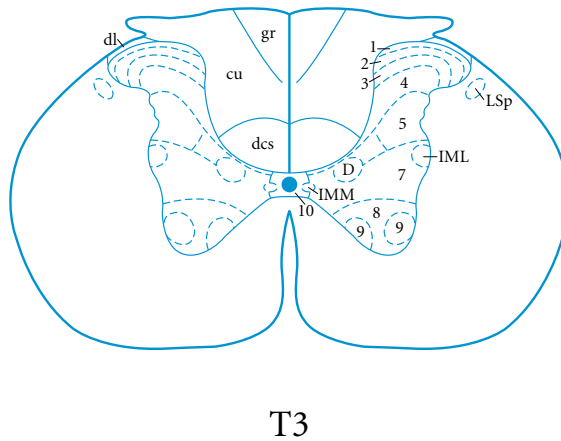
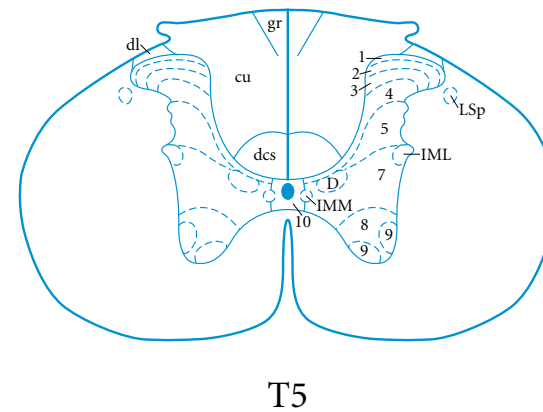
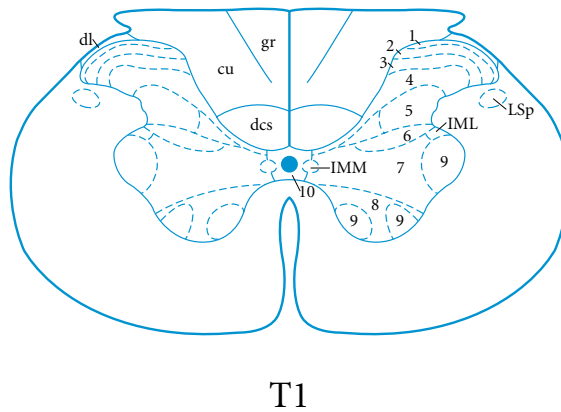
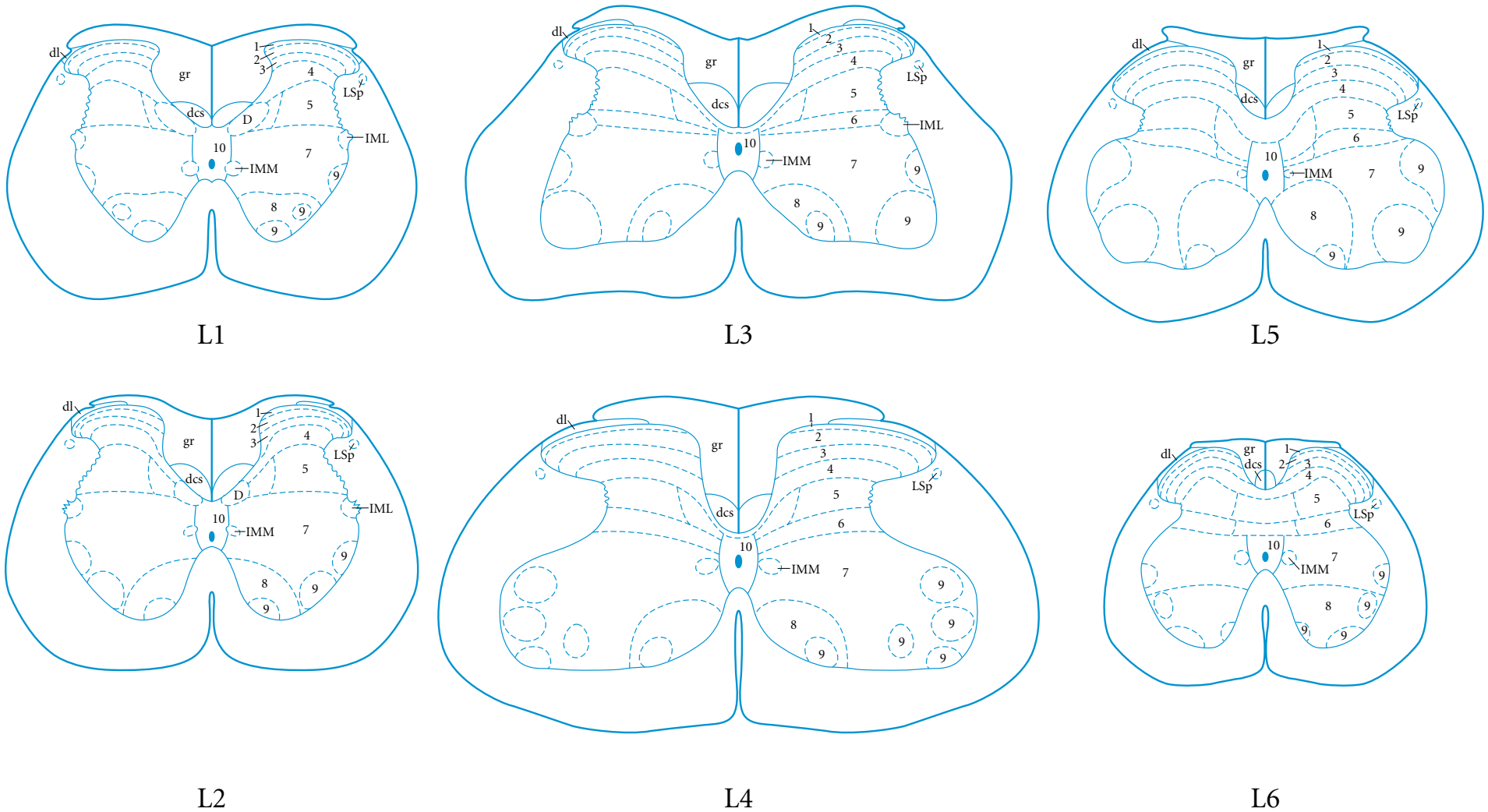


Figure 162d\*



1-10 spinal cord layers  
 CeCv central cervical nucleus  
 D dorsal nucleus (Clarke)  
 dl dorsolateral fasciculus  
 gr gracile fasciculus

IML intermediolateral cell column  
 IMM intermediomedial cell column  
 LatC lateral cervical nucleus  
 LSp lateral spinal nucleus  
 dcs dorsal corticospinal tract

\*Fig 162a, 162b, 162c, 162d, 162e are reproduced from Molander and Grant (1995) with permission of the authors. Users of these figures should cite Molander, C. and Grant, G., 1995, Spinal cord cytoarchitecture.

In G. Paxinos(Ed), *The Nervous System*, Second Edition, Academic Press, San Diego.

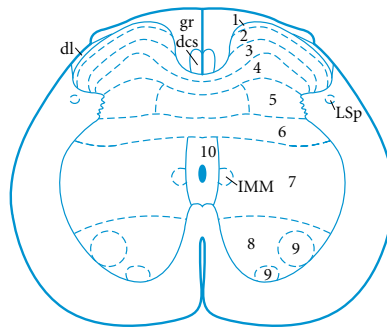
1-10 spinal cord layers  
 CeCv central cervical nucleus  
 dl dorsolateral fasciculus  
 gr gracile fasciculus  
 IML intermediolateral cell column

IMM intermediodorsal cell column  
 LatC lateral cervical nucleus  
 LSp lateral spinal nucleus  
 dcs dorsal corticospinal tract

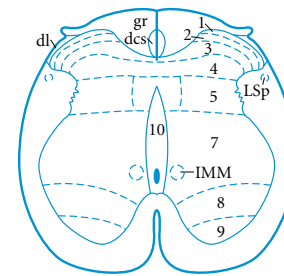
\*Fig 162a, 162b, 162c, 162d, 162e are reproduced from Molander and Grant (1995) with permission of the authors. Users of these figures should cite Molander, C. and Grant, G., 1995, Spinal cord cytoarchitecture.

In G. Paxinos(Ed), *The Nervous System*, Second Edition, Academic Press, SanDiego.

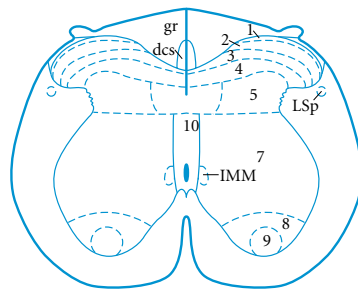
Figure 162e\*



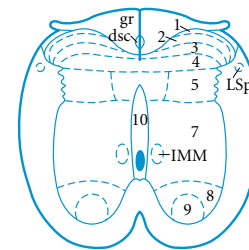
S1



S3



S2



S4